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1894/95

Fifth
Annual
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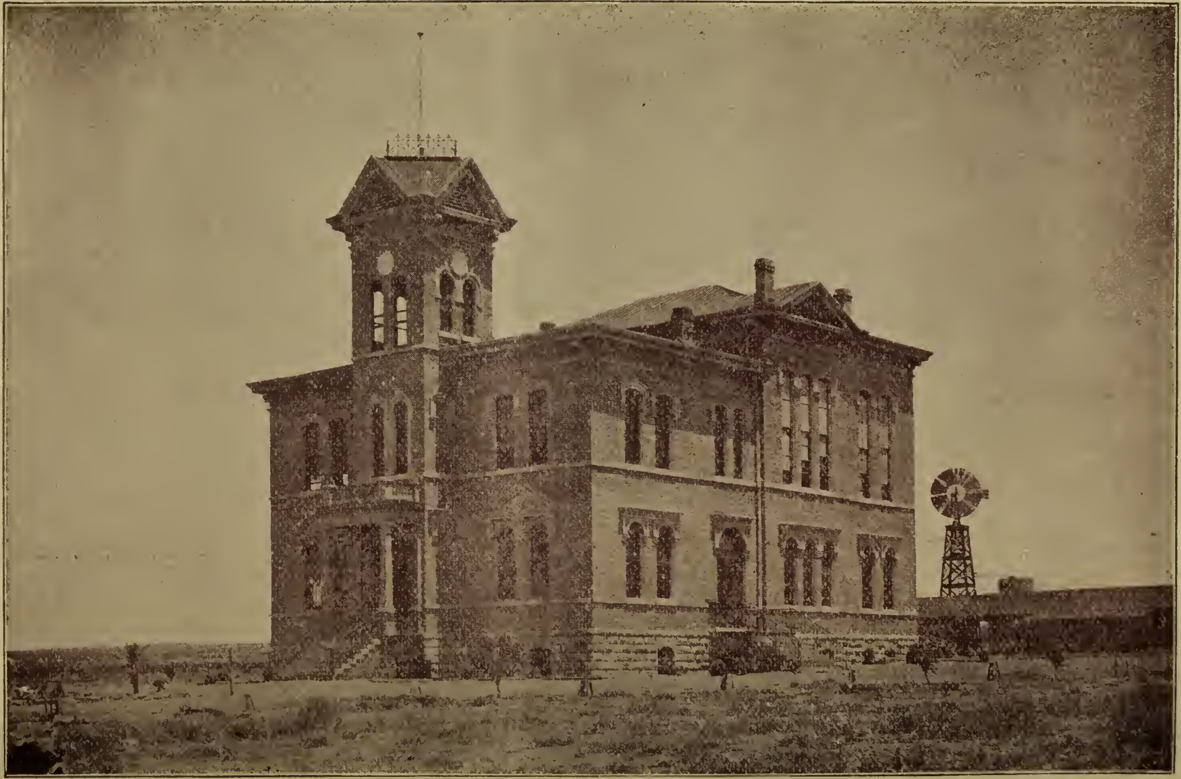
NEW MEXICO
COLLEGE OF AGRICULTURE
—AND—
MECHANIC ARTS.

1894-95.



MAIN COLLEGE BUILDING.

NEW MEXICO

COLLEGE OF AGRICULTURE

—AND—

MECHANIC ARTS.

MESILLA PARK.

CATALOGUE FOR 1894-95.

AND ANNOUNCEMENTS FOR 1895-96.

LAS CRUCES, N. M.
ALLEN KELLY.
1895.

Calendar for 1895-6.

Re-examinations and examination of new students for admission, Tuesday, September 3, 1895.

First term begins Wednesday, September 4, 1895.

First term ends Wednesday, November 27, 1895.

Second term begins Monday, December 2, 1895.

Holiday vacation begins Saturday, December 21, 1895, and ends Sunday, January 5, 1896.

Second term ends Wednesday, March 11, 1896.

Third term begins Monday, March 16, 1896.

Third term ends Wednesday, June 10, 1896.

Table of Contents.

General Statement:

Location, Origin 9
Design 10
Income 11
Territorial Appropriations and Legislation 12
Needs of the College 15
Hatch Fund, Morrill Fund 16
Endowment 17

Requirements for admission:

Commissioned High Schools, 18
Commissioned Graded Schools 19
Courses of Study 20
Degrees 21
Courses of Study (tabular form) 22

Departments of Instruction:

Agriculture and Horticulture 26
Botany and Geology 28
Chemistry 31
Entomology, Zoölogy, and Physiology 33
Mathematics and Astronomy 35
Engineering and Physics 37
History and Political Science 47
Languages 49
Mental Science 52
Elocution and Physical Culture 54
Preparatory Department 55
Business Department 58
College Societies 68

General Information:

Reduced Railroad Fares, Text-books 70
Stationery, Fees, Boarding and other Expenses 71
Paid Labor, Discipline 73
Politics, Religion 74
Examinations, etc. 75
The College as a Teachers' Training School 75
Material Equipment 76
General Request 82
Catalogue of Students 83
The Agricultural Experiment Station 90

Board of Regents.

William T. Thornton, Governor, *Ex-Officio.*
Amado Chavez, Superintendent Public Instruction, *Ex-Officio.*
John R. McFie, Las Cruces; term expires 1895.
J. D. W. Veeder, Las Vegas; term expires 1896.
Robert Black, Silver City; term expires 1897.
Thomas J. Bull, Mesilla, term expires 1898.
Demetrio Chavez, Mesilla; term expires 1899.

OFFICERS OF THE BOARD.
Thomas J. Bull, President.
Demetrio Chavez, Secretary and Treasurer.

Faculty: 1894-1895.

[Arranged in groups in order of seniority of appointment, except the President.]

SAMUEL P. MCCREA, President and Professor of Psychology, and Logic.

JOHN P. OWEN, Vice-President and Professor of History and Political Science, and in charge of Literature.

AINSWORTH E. BLOUNT, A. M., Professor of Agriculture and Horticulture.

ELMER O. WOOTON, B. S., Professor of Botany, and in charge of Geology and Physics.

CLARENCE T. HAGERTY, B. S., Professor of Mathematics and Astronomy.

ARTHUR GOSS, M. S., A. C., Professor of Chemistry.

ALBERT E. DAVISSON, Principal of Preparatory Department and in charge of Latin.

T. D. A. COCKERELL, Professor of Entomology, Zoölogy, and Physiology.

HORACE ROPES, B. S., Professor of Civil and Mechanical Engineering.

Instructors and Assistants.

IDA M. JONES, Instructor in Spanish and Assistant in Preparatory Department.

MADAM LOLA DOREGO, Instructor in Music, Elocution, and Reading.

FRANK E. LESTER, Instructor in Stenography and Typewriting, and College Clerk.

R. FRED HARE, M. S., Assistant in Chemistry.

J. A. CHRISTMAN, Instructor in Bookkeeping, Commercial Law, and Penmanship.

J. P. STEWART, Instructor in Telegraphy.

FABIAN GARCIA, B. S., Assistant in Agriculture and Horticulture.

CHARLES MILLS, Foreman of Wood Shop and Foundry.

Faculty: 1895-1896.

[Arranged in groups in order of seniority of appointment, except the President.]

SAMUEL P. McCREA,
President and Professor of Psychology and Logic.

JOHN P. OWEN,
Vice-President and Professor of History, Political Science and Literature.

ELMER O. WOOTON, B. S.,
Professor of Botany and Geology.

CLARENCE T. HAGERTY, B. S.,
Professor of Mathematics and Astronomy.

ARTHUR GOSS, M. S., A. C.,
Professor of Chemistry.

ALBERT E. DAVISSON,
Principal of Preparatory Department and Professor of Latin.

T. D. A. COCKERELL,
Professor of Entomology, Zoölogy, and Physiology.

HORACE ROPES, B. S.,
Professor of Civil and Mechanical Engineering and Physics.

GEORGE VESTAL,
Professor of Agriculture and Horticulture.

Instructors and Assistants,

IDA M. JONES,
Instructor in Spanish and Assistant in Preparatory Department.

FRANK E. LESTER,
Instructor in Stenography and Typewriting, and College Clerk.

R. FRED HARE, M. S.,
Assistant in Chemistry.

FABIAN GARCIA, B. S.,
Assistant in Agriculture and Horticulture.

CHARLES MILLS,
Instructor in College Shops.

J. A. CHRISTMAN,
Instructor in Penmanship and Commercial Branches.

J. P. STEWART,
Instructor in Telegraphy.

ELLEN F. GIBSON,
Instructor in Elocution and Physical Culture, and Assistant in the Preparatory School.

Faculty Committees.

JUDICIARY.

For 1894-1895.	*For 1895-1896.*
Arthur Goss, *Chairman*,	Arthur Goss, *Chairman*.
A. E. Blount,	Horace Ropes.
A. E. Davisson,	A. E. Davisson.

COURSE OF STUDY.

J. P. Owen, *Chairman*,	J. P. Owen, *Chairman*.
C. T. Hagerty,	C. T. Hagerty.
Horace Ropes.	Horace Ropes.

LIBRARY.

E. O. Wooton, *Chairman*,	E. O. Wooton, *Chairman*.
J. P. Owen,	J. P. Owen.
Arthur Goss,	Arthur Goss.

BUILDINGS AND GROUNDS.

A. E. Blount, *Chairman*,	George Vestal, *Chairman*.
Horace Ropes,	Horace Ropes.
T. D. A. Cockerell.	T. D. A. Cockerell.

CATALOGUE.

C. T. Hagerty, *Chairman*,	C. T. Hagerty, *Chairman*.
A. E. Davisson,	A. E. Davisson,
E. O. Wooton,	E. O. Wooton.

BOARDING.

T. D. A. Cockerell, *Chairman*,	T. D. A. Cockerell, *Chair'n*.
J. P. Owen,	J. P. Owen,
Arthur Goss,	Arthur Goss,

ENTERTAINMENT.

A. E. Davisson, *Chairman*,	A. E. Davisson, *Chairman*.
C. T. Hagerty,	C. T. Hagerty,
E. O. Wooton,	E. O. Wooton,

LEGISLATION FOR COLLEGE.

Horace Ropes, *Chairman*,	Horace Ropes, *Chairman*.
A. E. Blount,	George Vestal,
J. P. Owen,	J. P. Owen.

NOTE.—The President of the Faculty is Ex-Officio member of all committees.

General statement.

LOCATION.

The New Mexico College of Agriculture and Mechanic Arts is beautifully situated about two miles south-east of Las Cruces, Doña Ana County. Its location in the famous Mesilla Valley, favorably known since the Gadsden Purchase, gives it the best advantages for agricultural and horticultural experiments.

Las Cruces is on the main line of the Atchison, Topeka & Santa Fé Railroad, and is accessible from the different parts of the Territory. It has a population of about 2500 people, and all lines of business are carried on. It has good public schools, several mission schools, and a Catholic academy for the education of girls. The Presbyterians, Methodists, and Catholics have large congregations and fine churches, and students are welcomed to their services. The town is noted for being the largest fruit and alfalfa shipping point in the Territory, and is rapidly becoming known as one of the finest winter health resorts in the whole country. About two miles away is the quaint old town of Mesilla, long the most noted point in this section of the country, and at one time the seat of government for the whole of the present Territory of Arizona, then a part of Doña Ana County.

ORIGIN.

The New Mexico College of Agriculture and Mechanic Arts, though under a slightly different name, was established by the Twenty-eighth Legislative Assembly of New Mexico by Act approved February 28, 1889. The purpose of the institution is clearly defined in Section 19, of this Act:—

"The Agricultural College created and established by this Act, shall be non-sectarian in character, and devoted to practical instruction in agriculture, mechanic arts, natural sciences connected therewith, as well as a thorough course of instruction in all branches of learning bearing upon agriculture and other industrial pursuits."

The branches of learning in which instruction may be given are set forth as follows in Section 20 of the same Act:—

"The course of instruction of the College hereby created shall embrace the English language, literature, mathematics, philosophy, civil engineering, chemistry, and animal and vegetable anatomy and physiology, and political, rural, and household economy, horticulture, moral philosophy, history, mechanics, and such other sciences and courses of instruction as shall be prescribed by the regents of this institution of learning."

By Section 25 of the same Act the assent of the Legislative Assembly was given to the establishment of experiment stations within the Territory of New Mexico in connection with the Agricultural College in pursuance of the Act of Congress approved March 2, 1887.

DESIGN.

The Acts of Congress, making donations of land and money to agricultural colleges, show plainly a purpose to provide facilities for instruction in certain specific lines; and, with such purpose, the Act of the Legislative Assembly is designed to harmonize. It is clear that the design throughout has been to provide for the youth a liberal education, which is of the most practical character. The mind must be trained to correct thinking, the soul to right action, and the hand to some form of labor. It is only by a training adapted to the powers of mind, soul, and body, that a harmonious development of the whole being can be secured. If to this training is added a proper sense of the nobility of labor, a just appreciation of the rights and duties of American citizenship, and an inspiration to do and to be something, we have every reason to believe there will follow a life of true and capable service in some line of usefulness.

INCOME.

To furnish the necessary facilities for such a broad and thorough training requires much time and thought, and a great deal of money. This institution has already a liberal income to apply in the line of instruction and experiment; but the Territory must furnish all necessary buildings to properly use the funds so generously donated by the United States, and to provide for instruction in some branches not included under the Hatch or Morrill Acts. The revenues of this college are derived from the following sources:—

1. From students' fees.
2. From the sale of products of the college farm.
3. From territorial appropriations.
4. From the U. S. under Act of March 2, 1887—the Hatch fund.
5. From the U. S. under Act of Aug. 30, 1890—the Morrill fund.

The money received from students and from the sale of products from the college farm has, so far, been very limited in amount, and has been used principally for paying expenses not provided for by either of the acts of congress.

The fees collected up to April 30, 1895, for the year 1894-1895 are as follows:—

Entrance fees	$462.00	
Shop practice fees	39.00	
Chemistry fees	5.00	
Assaying fees	10.00	
Music fees	127.50	
		$643.50
Farm products (January 28, 1895,)		42.80
		$686.30

TERRITORIAL APPROPRIATIONS AND LEGISLATION.

The Act creating the institution provided for an annual levy of one-fifth of a mill, commencing with the year 1889. This levy has, so far, yielded an annual income of about $7,000—which has been insufficient to provide the necessary buildings to carry on the work of the college and station in a proper manner. To November 30, 1894, the Territory had spent on this college about $33,000. For the period 1890-1894 the U. S. appropriated for it $155,000, of which a considerable balance is yet on hand.

The Thirtieth Legislative Assembly passed an act, approved February 13, 1893, creating a Sub-Agricultural Experiment Station and established the same in San Juan county. For the purpose of erecting buildings thereon, and for other purposes, the sum of $5,000 was appropriated out of the War Tax of 1861 refunded by the general government. This Sub-Station has been located in the vicinity of Aztec in said county upon a tract of 120 acres of irrigated land donated to the Territory. A comfortable house and barn have been built upon this experimental farm, exhausting the money appropriated by the Legislature for that purpose. It has been decided to limit experimental work, for the present, to forty acres of the farm. The appropriation for 1894-1895 for the support of this station was $2000. As a team, wagon, and a fair supply of farming implements have already been purchased, the appropriation for 1895-1896 for station support has been limited to $1800.

On October 1, 1894, Harvey H. Griffin, B. S., took charge of the San Juan Branch Experiment Station as Superintendent. Mr. Griffin, soon after his graduation from the Colorado Agricultural College in 1888, was placed in charge of the San Luis Branch Station connected with that institution. He resigned that position to become Assistant in Agriculture and Horticulture in the New Mexico College of Agriculture and Mechanic Arts in 1891, and retained this position for three years.

Of the Branch Stations created by the Act of Feb. 23, 1893, one has been located near Las Vegas, N. M., on a tract of 160 acres of land that may be irrigated. In May 1894, Mr. F. O. Kihlberg was appointed Superintendent of this station, of which he has since had charge. For the year ending June 30, 1894, the sum of $1645 was spent on this station in the payment of salaries, the purchase of a team, wagon, various farming implements, and in partially excavating a small reservoir for storing water. For the year 1894-1895, for the support of this station, the most liberal provision was made by the appropriation of $3000; yet an additional appropriation of $700 had to be made to carry it through the year. In view of the facts that this station is unusually well supplied with farming implements, and has a team and wagon, it was decided to limit the appropriation for its support for 1895-1896 to the sum of $1800. The amount of land devoted to experimental purposes is forty acres. There will be $900 to devote to experiments on this tract. The Territorial appropriation, which has so far produced about $2100, has been spent in the erection of a barn and is practically exhausted. No house can be erected at this station until a specific appropriation is made for that purpose by the next Legislative Assembly. As will be readily seen, about $5400 of the Experiment Station fund has in two years been expended at this station, and it is not yet in successful operation. Such extensive expenditures can no longer be maintained in justice to the Agricultural College and other stations.

For the year beginning July 1, 1895, Mr. Frank Beach, M. S., will have charge of the Las Vegas Branch Station. Mr. Beach was graduated from the Colorado Agricultural College in 1893. Soon afterward he was chosen Superintendent of the San Luis Valley Experiment Station. This position he resigned at the end of one year, to pursue advanced studies in agriculture in the University of Nebraska. There is no doubt he comes to this new position well qualified to take up the work.

The other Branch Experiment Station, created by the same Act, has been located near Roswell, N. M., on 100 acres of irrigated land. Since a deed of this land has just been made to the Territory, as required by law, nothing has been done by the Regents to begin improvements. Of the tax levied for the construction of buildings at this station, about $2100 has been collected, and is now in the hands of the Territorial Treasurer. Nearly $200 of College funds was spent in the location of this Branch Experiment Station, which so far has proved of no direct benefit to the institution.

In each of the several Acts creating these Branch Experiment Stations is a section authorizing the Regents to apply to the support and maintenance of each station such a part of the funds received from the United States for Agricultural Experiment Stations as can be so applied *in justice to each of the other stations, and to the Agricultural College*. The Regents feel they have carried out the laws relating to these stations with strict impartiality and entire fairness. There is no doubt that more Branch Stations have already been created by the Legislative Assembly than can be provided for out of the Station fund of the College. One in the extreme north, one in the extreme south, and one near the central part of the Territory, cover all the leading varieties of soil and climate. It should be understood that the Branch Stations already established can never be anything more than branch farms of the College, carried on under its direction and for its advantage as the guide and instructor of the farmers, unless the Territory is willing to assume the burden of their support. The analytical work in chemistry, botany, and entomology will always be done at the College Experiment Station, and the results published from there. In order to do this, considerable means are necessary. The salary roll is already large and will increase, and the appliances for properly doing scientific work equal in rank to that done by similar schools, must be supplied and are costly. If any further demands are made on the Experiment Station fund the character of the work done here is bound to deteriorate. The Agricultural Colleges in the old states without exception have abolished all their branch experiment stations, because of the great expense and small returns. While the Regents of the New Mexico College of Agriculture and Mechanic Arts do not expect the stations already established to be abolished, they intend to labor earnestly against the creation of any more stations, and to keep the expenditures of those already created within due bounds, that the parent institution be not crippled.

THE NEEDS OF THE COLLEGE.

The most urgent needs of the College are *more buildings.* The last Legislative Assembly voted an issue of Territorial bonds amounting to $15,000 for new college buildings. If approved by the next session of Congress, they may be sold, and the money used to erect new buildings in the summer and fall of 1896. But the college must be carried on for at least another year in its present crowded quarters. The Legislative Assembly in its wisdom saw fit to limit the expenditure of the Territorial fund to be collected under the tax levy of 21–100 of a mill for 1895 and 1896, exclusively to buildings and repairs. From the inception of the college, the Territorial fund designed for the support of the institution has been disbursed as the good judgment of the Regents might determine.

On account of the limitations imposed by this Act, the Board of Regents will find it difficult to meet such necessary expenses as fuel,insurance, janitor service, teaching Spanish and

Latin, etc. Nor can a regular teacher of music be longer employed by this institution as there is no fund from which the Instructor can be paid. If taught, it must be privately for the fees.

The late Territorial Auditor estimated that the 21–100 mill tax levy would yield the college about $6,000 per year. It will take about all of the revenue for 1895 to pay the debt which still stands against the Main College Building. It is hoped that the revenue for 1896 can be utilized for building a Boarding Hall for the use of the college students. Such a building is absolutely necessary to the continued growth and prosperity of this college.

THE HATCH FUND.

The U. S. Law of March 2, 1887, established Experiment Stations in connection with the Agricultural Colleges in the various states and territories. For the support of each station there is set apart the sum of $15,000, which is payable quarterly. This money must be used for "paying the necessary expenses of conducting investigations and experiments, and printing and distributing the results." Bulletins showing progress must be printed each quarter, and sent to each newspaper in the Territory and to all farmers who apply for them. This fund first became available for this College in 1889-90 to the amount of $10,000. Since July 1, 1890, $15,000 a year has been received. After the first year only five per cent of this fund can be used to erect, enlarge, or repair buildings for the use of the Experiment Station. Any unexpended balance in this fund at the close of the fiscal year must be covered into the U. S. Treasury.

THE MORRILL FUND.

This fund was created by the U. S. law of Aug. 30, 1890, for the more complete endowment and support of the Colleges of Agriculture and Mechanic Arts in the several states and territories. It is paid over to them before July 31, of each year. The College received this fund first in 1890 to the amount of $15,000. For the coming fiscal year this fund will be $21,000 and will increase $1,000 a year until it reaches $25,000 at which sum it will remain. This fund can only be applied "to instruction in agriculture, the mechanic arts, the English language, and the various branches of mathematical, physical, natural, and economic science, with special reference to their application in the industries of life, and to the facilities for such instruction." No part of this fund can be used in any way for building purposes.

ENDOWMENT.

When New Mexico becomes a State, under the Act of Congress, approved July 2, 1862, it will receive a grant of land for endowing the Agricultural College amounting to 30,000 acres for each Senator and Representative in Congress. This would now entitle us to 90,000 acres. Under the terms of the bill introduced by Hon. Antonio Joseph to admit New Mexico as a State,this College is to receive 100,000 acres of public land. If this amount of land be carefully located, it can be made to yield the college in time a fair endowment. The amount of money derived from the sale of this land, without any deduction for expenses, must be safely invested in such manner as to yield not less than five per cent revenue. The interest only can be used for the support of the college. Colorado now realizes about $7,000 a year from this grant for the support of her Agricultural College.

Requirements For Admission.

To enter the Freshman class of the college, students must be able to pass satisfactory examinations in reading, spelling, arithmetic complete, including the metric system, elementary algebra through quadratics, U. S. history, geography, hygiene as required by the U. S. Law for the Territories, grammar complete, composition and the elements of rhetoric. The purpose of examinations will be to test the working power of the applicants and their ability to enter upon the proposed work. Students who can pass the above examinations are well equipped for the ordinary duties of life, and to enter successfully upon the college courses. Without this preparation they can not succeed in college. Therefore, in the interests of both the college and the student, we shall insist that this preparation be thoroughly made.

All applicants for admission to the college must be at least sixteen years of age, and must furnish satisfactory evidence of good moral character. No person known to indulge in intoxicating drinks or to visit questionable resorts will be admitted.

Students from other Agricultural Colleges of equal rank will be admitted to corresponding classes in this college upon presentation of certificates showing rank and honorable dismissal.

COMMISSIONED HIGH SCHOOLS.

The Principals and Superintendents of the High Schools herein enumerated are authorized to prepare students for admission to the New Mexico College of Agriculture and Mechanic Arts:—

Raton High School—Walter W. Storms, Superintendent.

Las Vegas High School—J. A. Wood, Superintendent.

Albuquerque High School—Chas. E. Hodgin, Superintendent.

Deming High School—J. H. Hatton, Principal.

Eddy High School—E. O. Creighton, Principal.

El Paso High School—G. P. Putnam, Superintendent.

Upon presentation of Diplomas, graduates of the above mentioned High Schools will be admitted without examination to the course in Stenography and Type Writing or to the Freshman class in any of the Collegiate courses of this institution. Advanced standing may be secured by passing the required examinations.

Students who have completed spelling, reading, grammar, geography, arithmetic, and U. S. history in the public schools of the above named places in a satisfactory manner, and can produce certificates to that effect, will be admitted to the Third Year Preparatory class, or to the courses in Bookkeeping or Telegraphy, without examination. Such students must be not less than fifteen years of age.

COMMISSIONED GRADED SCHOOLS.

The Principals of the Graded Schools herein named are authorized to prepare students for admission to the Third Year Preparatory class, the course in Bookkeeping, and the course in Telegraphy:—

Miss M. R. Koehler, Principal Silver City Graded School.

U. Francis Duff, Principal Socorro Graded School.

D. M. Richards, Principal Gallup Graded School.

Chas. W. Ward, Principal Lincoln Graded School.

J. H. Carleton, Principal Hillsboro Graded School.

Students of the above named schools, who have completed spelling, reading, grammar, geography, U. S. history, and arithmetic in a satisfactory manner and hold certificates to that effect, will be admitted without examination to the Third Year

Preparatory class, the course in Bookkeeping, or the course in Telegraphy, provided they be not less than fifteen years of age.

The College reserves the right to withdraw these commissions at any time should the character of the work done fall below the present standard of excellence.

Courses of Study.

The following Collegiate Courses of study have been provided:—

I. Agricultural Course.
II. Irrigation Engineering Course.
III. Mechanical Course.
IV. Scientific Course.

These courses, with a very few exceptions, are alike in the Freshman and Sophomore years. For these years, the branches of study have been selected for their value in attaining mental culture, in widening the student's intellectual horizon and in furnishing the necessary information for the strictly technical studies of the Junior and Senior years.

Each course includes training in Language, Literature, and History. These subjects are especially valuable for their influence in the formation of character and of correct views of life and its purposes. They develop breadth of view and liberality of opinion, both of which are necessary for rapid advancement in any field of labor. An attempt is made to carefully supplement theory with practice in all courses.

Special courses will not be encouraged by the faculty. With the variety of regular courses given, there is little need for them. Students of mature years, who are not able to remain long enough to take a full course, may be allowed to take special courses. Such students must have sufficient scholarship to carry on the work they undertake, their work must not conflict with that in the regular courses, and must be sufficient to keep them fully employed. The faculty reserves the right to refuse such requests, or to order such modifications as may seem best for the student and college. No degrees are granted for special work, but those who perform such work in a satisfactory manner will receive certificates.

In the tabular form of the Course of Study on the following pages the figure to the right of each subject denotes the number of exercises per week.

Practice exercises are one hour and forty minutes long; all others, fifty minutes.

Degrees.

The degree of *Bachelor of Science* (*B. S.*) is conferred on students who satisfactorily complete the work prescribed in any of the four Collegiate courses of study.

COURSES OF STUDY.—*Freshman Year.*

	AGRICULTURAL.		MECHANICAL.		IRRIGATION ENGINEERING.		SCIENTIFIC.	
First Term.	Geometry	5	Geometry	5	Geometry	5	Geometry	5
	Rhetoric	5	Rhetoric	5	Rhetoric	5	Rhetoric	5
	Ancient History	5	Ancient History	5	Ancient History	5	Ancient History	5
	English or Elocution	1	English or Elocution	1	English or Elocution	1	English or Elocution	1
	PRACTICE.		PRACTICE.		PRACTICE.		PRACTICE.	
	Wood Turning	3½	Wood Turning	3½	Wood Turning	3½	Wood Turning	3½
	Freehand Drawing	2½	Freehand Drawing	2½	Freehand Drawing	2½	Freehand Drawing	2½
							Literary Reading	*2½
Second Term.	Geometry	5	Geometry	5	Geometry	5	Geometry	5
	Med. and Mod. History	5	Med. and Mod. History	5	Med. and Mod. History	5	Med. and Mod. History	5
	Spanish or Latin	5	Spanish or Latin	5	Spanish or Latin	5	Spanish or Latin	5
	English or Elocution	1	English or Elocution	1	English or Elocution	1	English or Elocution	1
	PRACTICE.		PRACTICE.		PRACTICE.		PRACTICE.	
	Carpentry and Joinery	3½	Carpentry and Joinery	3½	Carpentry and Joinery	3½	Carpentry and Joinery	3½
	Freehand Drawing	2½	Freehand Drawing	2½	Freehand Drawing	2½	Freehand Drawing	2½
							Literary Reading	*2½
Third Term.	Geometry	5	Geometry	5	Geometry	5	Geometry	5
	Botany	5	Descriptive Geometry	5	Descriptive Geometry	5	Botany	5
	Spanish or Latin	5	Spanish or Latin	5	Spanish or Latin	5	Spanish or Latin	5
	English or Elocution	1	English or Elocution	1	English or Elocution	1	English or Elocution	1
	PRACTICE.		PRACTICE.		PRACTICE.		PRACTICE.	
	Blacksmithing	3½	Blacksmithing	3½	Blacksmithing	3½	Blacksmithing	3½
	Garden Work	2½	Mechanical Drawing	2½	Mechanical Drawing	2½	Freehand Drawing	2½
							Literary Reading	*2½

* Prescribed work for women instead of Wood Turning.

COURSES OF STUDY.—Sophomore Year.

	AGRICULTURAL.		MECHANICAL.		IRRIGATION ENGINEERING.		SCIENTIFIC.	
First Term.	Advanced Algebra	5	Advanced Algebra	5	Advanced Algebra	5	Advanced Algebra	5
	Physics	5	Physics	5	Physics	5	Physics	5
	Spanish or Latin	5	Spanish or Latin	5	Spanish or Latin	5	Spanish or Latin	5
	English or Elocution	1	English or Elocution	1	English or Elocution	1	English or Elocution	1
	Const. and Polit. History	4					Const. and Polit. History	4
	PRACTICE.		PRACTICE.		PRACTICE.		PRACTICE.	
	Farm Work	3	Mechanical Drawing	2½	Mechanical Drawing	2½	American Classics	3
			Carpentry	3½	Surveying and Mapping	3½		
Second Term.	Trigonometry	5	Trigonometry	5	Trigonometry	5	Trig. or *Recent History	5
	Physics	5	Physics	5	Physics	5	Physics	5
	Spanish or Latin	5	Spanish or Latin	5	Spanish or Latin	5	Spanish or Latin	5
	English or Elocution	1	English or Elocution	1	English or Elocution	1	English or Elocution	1
	Botany	2					Botany	2
	PRACTICE.		PRACTICE.		PRACTICE.		PRACTICE.	
	Farm Work	5	Mechanical Drawing	2½	Mechanical Drawing	2½	Scientific Drawing	4
			Foundry and Pattern Making	3½	Surveying and Mapping	3½		
Third Term.	English History	4	Higher Algebra	4	Higher Algebra	4	English History	4
	Physics	4	Physics	4	Physics	4	Physics	4
	Spanish or Latin	5	Spanish or Latin	5	Spanish or Latin	5	Spanish or Latin	5
	English or Elocution	1	English or Elocution	1	English or Elocution	1	English or Elocution	1
	Surveying	2			Surveying	2	Surveying	2
	PRACTICE.		PRACTICE.		PRACTICE.		PRACTICE.	
	Botanical Laboratory	5	Graphic Statics	2½	Graphic Statics	2½	Botanical Laboratory	5
	Surveying	2	Foundry and Pattern Making	3½	Surveying	2	Surveying or *Home Hygiene	2

* For women.

COURSES OF STUDY.—*Junior Year.*

	AGRICULTURAL.		MECHANICAL.		IRRIGATION ENGINEERING.		SCIENTIFIC.	
First Term.	Agriculture	4	Analytic Geometry	5	Analytic Geometry	5	Analytic Geometry or Spanish or Latin	5
	English Literature	4	English Literature	4	English Literature	4	English Literature	4
	Civics	5	Civics	5	Civics	5	Civics	5
	English or Elocution	1	English or Elocution	1	English or Elocution	1	English or Elocution	1
	Physiology	5					Physiology	5
	PRACTICE.		PRACTICE.		PRACTICE.		PRACTICE.	
	Farm Work	3	Machine Shop	3½	Surveying and Mapping	3½	Botanical Laboratory	2
			Elementary Machine Design	2½	Topographical Drawing	2½	Type Writing	*2½
Second Term.	Stock	3	Analytic Geom. & Calculus or Spanish or Latin	5	Analytic Geom. & Calculus or Spanish or Latin	5	Analytic Geom. & Calculus or Spanish or Latin	5
	Chemistry	10	Elementary Mechanics	5	Elementary Mechanics	5	Chemistry	10
	English Classics	3	English Classics	3	English Classics	3	English Classics	3
	English or Elocution	1	English or Elocution	1	English or Elocution	1	English or Elocution	1
					Surveying	1		
	PRACTICE.		PRACTICE.		PRACTICE.		PRACTICE.	
	Animal Husbandry	5	Machine Shop	3½	Surveying and Mapping	3½	Physiological Laboratory	3
			Elementary Machine Design	2½	Foundations, Stereotomy and Masonry	2½	Type Writing	*2½
Third Term.	American Literature	5	Calculus or American Lit	5	Calculus or American Lit.	5	Calculus or American Lit.	5
	Systematic Zoology	5	Strength of Materials	5	Strength of Materials	5	Systematic Zoology	5
	Horticulture	5	Hydraulics	5	Hydraulics	5	Psychology	5
	English or Elocution	1	English or Elocution	1	English or Elocution	1	English or Elocution	1
	PRACTICE.		PRACTICE.		PRACTICE.		PRACTICE.	
	Chemical Laboratory	5	Machine Shop	3½	Geodetic Surveying	2½	Chemical Laboratory	5
			Elementary Machine Design	2½	Engineering Structures	3½		

* Optional for women with work in laboratory.

COURSES OF STUDY.—Senior Year.

	AGRICULTURAL.		MECHANICAL.		IRRIGATION ENGINEERING.		SCIENTIFIC.	
First Term.	Agriculture	5	Analytic Mechanics or History of Civilization	5	Analytic Mechanics or History of Civilization	5	History of Civilization	5
							Stenography	*5
	Geology	5	Geology	5	Geology	5	Geology	5
			Engineering Journals	1	Engineering Journals	1		
	Entomology	5	Steam Engineering	4	Irrigation Engineering	4	Entomology	5
	English or Elocution	1	English or Elocution	1	English or Elocution	1	English or Elocution	1
	PRACTICE.		PRACTICE.		PRACTICE.		PRACTICE.	
	Chemistry, Botany, Zoology, Agricult., or Horticult.	7½	Machine Shop	3½	Irrigation Surveying	3½	Chemistry, Botany or Zoology	7½
			Elementary Machine Design	2½	Roofs and Bridges	2½	Stenography	*2½
Second Term.	Agriculture	4	Analytic Mechanics or Thermodynamics	4	Analytic Mechanics or Logic	4	Logic	4
	Diseases of Animals	5	Chemistry	10	Chemistry	10	History of Philosophy	5
							Stenography	*5
	Geology	5			Geology	5	Geology	5
			Engineering Journals	1	Engineering Journals	1		
	English or Elocution	1	English or Elocution	1	English or Elocution	1	English or Elocution	1
	PRACTICE.		PRACTICE.		PRACTICE.		PRACTICE.	
	Chemistry, Botany, Zoology, Agricult., or Horticult.	7½	Machine Shop	3½			Chemistry, Botany, or Zoology	7½
			Steam Engine Design	2½	Roofs and Bridges	2½	Stenography	*2½
Third Term.	Economic Botany	5	Engine and Boiler Tests	5	Astronomy	5	Astronomy	5
	Political Economy	5	Political Economy	5	Political Economy	5	Political Economy	5
	Horticulture	2	Engineering Journals	1	Engineering Journals	1	Stenography	*5
	PRACTICE.		PRACTICE.		PRACTICE.		PRACTICE.	
	Thesis	7½	Thesis and Thesis Drawings	7½	Thesis and Thesis Drawings	7½	Thesis	7½
							Stenography & Typewriting	*5

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* Optional for women with work in laboratory.

Agriculture and Horticulture.

GEORGE VESTAL.

The aim of this department is to educate scientific as well as practical Agriculturists and Horticulturists. In the class room, the studies are taught mainly by lectures, with careful readings of standard agricultural and horticultural books and periodicals and frequent discussions, oral and written, by the students, of the principles taught. The practice consists of work on the Experiment Farm, Orchards, Vineyard, Garden, Campus, etc., with the view of putting into practice the theories advanced in the class room; hence no theories will be advanced which cannot be fully substantiated in practical tests, except in cases of unsolved problems.

Agriculture and Horticulture involve a larger number of sciences than any other human employment, and become a fit sequence to a collegiate training. It is the aim to give this department of the college the largest development practicable, and to meet the full demand for agricultural education as fast as it shall arise.

In these studies, students will be required to take and preserve notes as a record of the work done in the class room and field.

During the third term of the Freshman, and the first and second terms of the Sophomore years, students will receive practical instructions on the Farm and in the Garden, which will consist of the proper preparation of the soil, manures, seeding, cultivating, harvesting and marketing of farm and garden crop; also the selection of sites, planting, and caring for orchards, vineyards, and vegetable gardens for commercial and private use. The art of grafting and budding will receive attention during these terms. The students will receive full explanation of the work being done as the occasion requires.

In connection with this work, several lectures will be given on the influence and importance of agriculture, and its relations to other pursuits.

In the Junior year first tèrm, the students will receive lectures, aided by text-book work, on the following subjects: farm economy, fences and farm buildings, rotation of crops, and other subjects which are of great importance to farmers. The second term of this year will be devoted to a course of lectures on the history and peculiarities of the different breeds of horses, cattle, sheep, swine, and poultry, their adaptation to climate, uses, etc. In the third term the instruction in horticulture will consist of lectures and the study of books on Pomology, embracing the propagation by seeds, cuttings, scions, layers, and suckers, the planting and general management of orchards, vineyards, and small fruit-gardens, insect enemies and their extermination by spraying and other means. Vegetable gardening will receive its share of attention, which will consist of a study of the choice of location, planting, cultivating, harvesting, storing and marketing the crop, the construction and management of hot-beds and cold frames.

The first and second terms of the Senior year will be devoted to the investigation of special crops adapted to this Territory, farm machinery, drainage, irrigation, meteorology and forestry. The course in diseases of animals will consist of the use of text-books principally. In the third term is a course of lectures on the general principles of landscape gardening, the erection and management of greenhouses and other horticultural buildings, floriculture, hybridizing, and cross-fertilizing ornamental and economic plants The student will have practical training in most of these branches. Students who wish may choose a practice in agriculture or horticulture for three hours a day throughout the Senior year.

Botany.

E. O. WOOTON, PROFESSOR.

Elementary Botany.—During the third term, Freshmen of the Agricultural and Scientific courses will devote five recitation periods per week to the study of phænogamic botany. A part of the time will be used in studying briefly the general features of cryptogams, as well as the more important and introductory points of physiological botany.

Plants which are typical of the various grander divisions of the plant kingdom will be analyzed and classified as a part of the class work, and all students will be required to prepare and name a few specimens for the college herbarium.

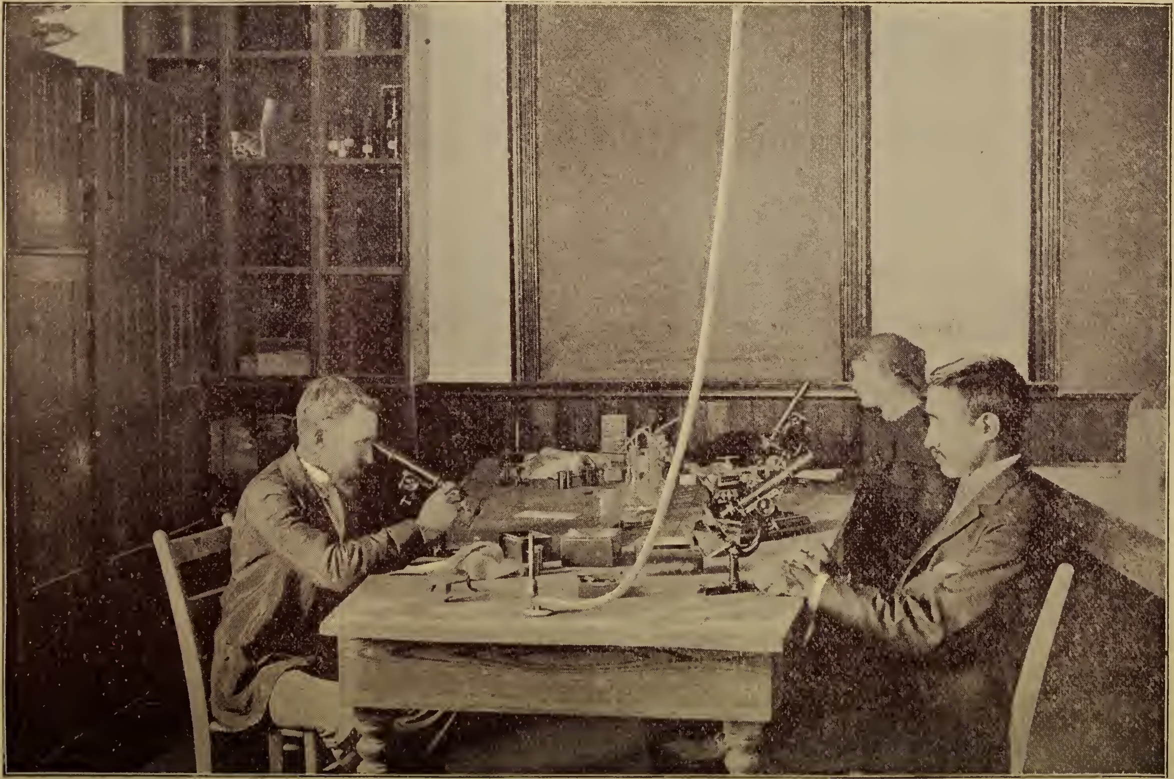
In this work Gray's text-book is taken as the guide, and Coulter's Flora of the Rocky Mountain Region is used for analysis and classification.

Advanced Botany.—Sophomores of the above mentioned courses will devote two periods per week in the second term to the further study of cryptogamic botany, special attention being paid to the classification of plants.

During the third term of this year the same students will spend two periods, five times per week, in the laboratory studying the minute anatomy of plants.

For this work the college is supplied with Bausch and Lomb's Compound "Model" microscopes, with magnifying power of from 50 to 300 diameters, as well as books of reference, reagents, microtome. and all other apparatus necessary.

The method of work will be the study, from living and alcoholic specimens, of the simple vegetable cell and its various modifications, cell contents, tissues, and tissue systems of the plant. This will include the simplest as well as the most complex forms of plant-life and will be so arranged as to give the student a good outline view of the whole vegetable kingdom.



BOTANICAL LABORATORY.

The intention is to attempt nothing but a good foundation for future work of any special line, leaving to the student the option of carrying on the work, or not, as he may choose.

The design of the course is to arouse interest in and induce careful observation of animate nature around us, and at the same time to teach the student to draw conclusions from observations, and to classify ideas as well as objects.

Juniors of the Scientific course will spend four hours per week during the first term in the laboratory continuing the work done in the last term of the preceding year. Students in this work will be assigned the duty of investigating, as completely as time will allow, some one particular plant, endeavoring to get as thorough a knowledge of its structure and methods of growth and reproduction as is possible. The selection of the work for each particular student will be largely at his own option depending on his ability and the material at hand.

Economic Botany.—Seniors of the Agricultural course will spend five recitation periods per week during the third term studying that part of cryptogamic botany which is of special commercial importance to the farmer and horticulturist.

The work of this class will be the study of injurious fungi and the remedies for them; the best means of applying fungicides, the times of application, the best methods of this new science which has been worked out by careful experimentation within recent years.

The whole subject will be made as eminently practical as possible in the time allotted and with the facilities at hand.

For the first term's work in botany, the students have access to the department library which contains a large number of valuable books of reference. Among others may be found Chapman's Flora of the Southern United States, Gray's Flora of North America, the Botany of King's Survey of the 40th Parallel, Botany of Wheeler's Survey of the 100th Meridian, Botany of the Mexican Boundary Survey, Botany of the Pacific Railroad Survey, Genera Plantarum, and many other valuable books on organography and systematic botany. For comparative study and reference students also have access to the college herbarium, which now contains specimens from many parts of the United States.

Students in the advanced botany classes will find some of the standard works on physiological and histological botany in the library; such as Sachs on the Physiology of Plants, Strasburger's Manual of Histology, DeBarry on Morphology and Biology of the Fungi, Mycetozoa, and Bacteria, the same author on Comparative Anatomy of Phanerogams and Ferns, Crookshank on Bacteria, and many others.

Students are held responsible for any damage to instruments intrusted to their care unless they can prove that they were not the cause of such damage.

Students who so desire have the option of electing advanced work in Botany during the whole of the Senior year. This option is offered in the expectation that such students will use this time , in gathering material together for their thesis work in the last term of the Senior year.

Geology.—During the first and second terms of the Senior year, students of the Agricultural, Irrigation Engineering, and Scientific courses will recite five times weekly in geology.

The first term will be devoted to the study of physiographic, structural, and dynamical geology; and considerable attention will be given in the subject of mineralogy in a general way. The second term is devoted entirely to the subject of historical geology and paleontology.

This department is equipped with the beginnings of a cabinet, in which are to be found some very good mineralogical specimens and quite a number of fossils of various geological ages.

Chemistry.

ARTHUR GOSS, PROFESSOR.

R. F. HARE, ASSISTANT.

Required Chemistry.—The course in chemistry, taken by all regular students, occupies the second and third terms of the Junior year.

The work during the second term of the Junior year will consist of a study of the fundamental principles of the science as outlined in Remsen's chemistry. This work will be supplemented by frequent exercises in the laboratory by the class under the direction of the Professor in charge. The time required of the students this term, besides that necessary for the preparation of lessons, will be two hours daily.

During the third term of the Junior year two hours daily will be spent in the laboratory in the study of qualitative analysis. Each student will be provided with a complete set of apparatus and reagents, by means of which any ordinary compound may be analyzed. The student will thus learn by actual practice the various methods of separating the different elements. Hill's qualitative analysis will be used as a guide in this work.

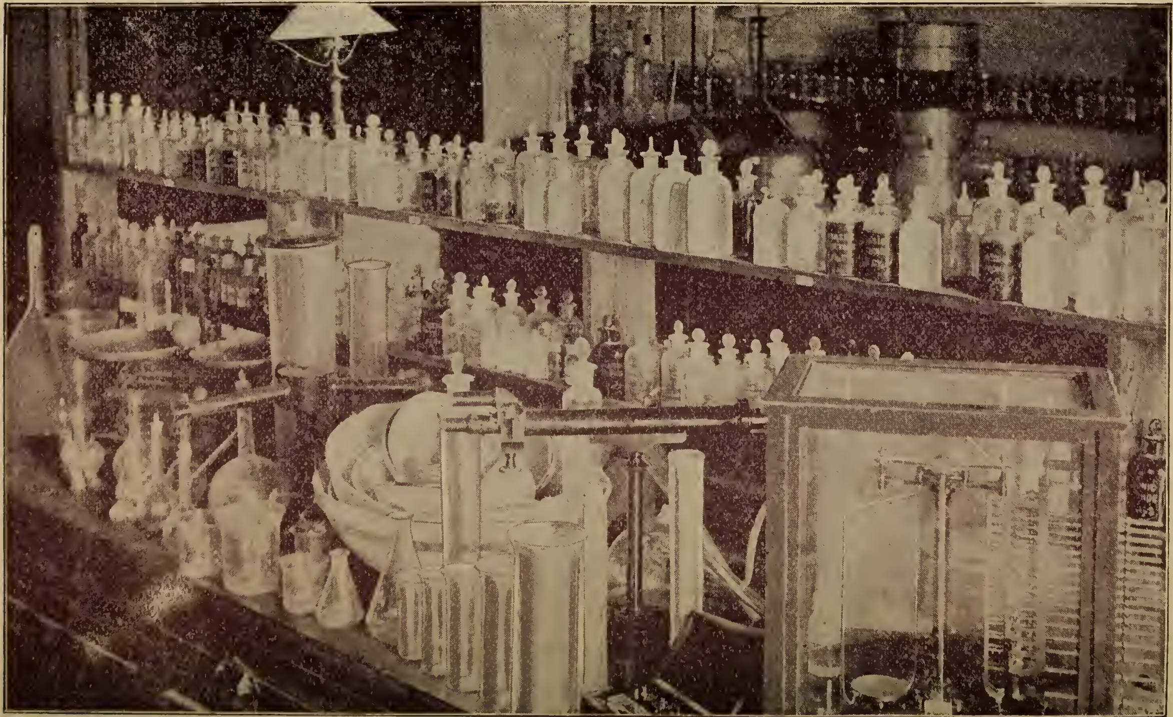
Elective Chemistry.—Chemistry has been introduced, two hours daily throughout the Senior year, as one of several elective studies; it being the intention to allow students to choose between different lines of scientific work. In this way more time can be devoted to the branch of science in which the student is particularly interested.

For the students who select chemistry, the work of the first term of the Senior year will consist of laboratory practice in general quantitative analysis. During this term students will receive instruction in the use of the balance and in general quantitative manipulation. Each student will be required to make some of the fundamental quantitative determinations,such as chlorine, sulphuric acid, and lime, thus becoming familiar with quantitative processes by actual practice.

The nature of the work done during the last two terms of the Senior year will be left largely to the choice of the student, but in general will consist of research work along some line of chemical investigation. Thus an investigation may be undertaken concerning waters, soils, ores, forage plants, methods of analysis or whatever subject the student may be particularly interested in, provided the same is approved by the professor in charge of the department.

Equipment.—Two rooms and a smaller store-room in the basement of the main building are at present used for the chemical work. A seventy-five light gasoline gas machine furnishes an adequate gas supply for this department. The room formerly used for the chemical laboratory has been entirely refitted and now has, besides a sink and fume closet, a brick covered furnace table and two well constructed work desks. These desks are supplied with gas and water pipes, drawers and lockers for apparatus, and racks for reagent bottles. Students are supplied with a full set of apparatus for laboratory work. This includes, among other things, beakers, test tubes, gas burners, porcelain dishes, flasks, wash bottles, platinum foil and wire, ring stands, filter stands, funnels, test tube racks, spatulas, tongs, blowpipes, and a full set of reagent bottles.

Another room has been fitted up with special reference to the accommodation of the Experiment Station work. This laboratory contains, among other things, a work desk which is supplied with gas, water, and an air exhaust pipe for rapid filtration, a commodious hood to carry off noxious gases, apparatus for the determination of Nitrogen by the Kjeldahl method, a titration shelf and system of burettes, a balance table supported by posts in contact with the ground,a Springer torsion balance, a Herzberg and Kuhlmann short beam automatic analytical



STUDENTS' CHEMICAL LABORATORY.

balance, a Scheibler's polariscope and about 400 dollars worth of platinum ware.

While the Station laboratory is not designed for the use of students, the work being carried on there will serve to illustrate what actual practical analytical work is like.

The chemical department also possesses a Becker's analytical balance, an Eimer and Amend gold plated assay balance sensitive to 1–200 of a milligram, a Troemner's solution balance,a first-class Bunsen's spectroscope, a Bosworth ore crusher, plate and rubber, mill and set of sieves for sampling, a plant of Brown's assay furnaces, a set of Hoskin's gasoline furnaces, a good supply of crucibles, scorifiers, cupels, tongs, etc., for the assay of ores, a collection of mineral specimens, and quite a large department library of standard books and periodicals for reference.

At the beginning of the work in chemistry in the Junior year and also at the beginning of the chemical work in the Senior year,each student will be required to deposit five dollars, ($5.00), with the College Clerk to cover breakage of apparatus. At the close of the year or upon withdrawing from the class the balance from the deposit, after deduting the cost of broken apparatus, will be returned to the student.

Entomology, Zoology, and Physiology.

T. D. A. COCKERELL, PROFESSOR.

Entomology is taught in the first term of the Senior year, but may extend over the whole of that year, under the name of elective science practice. In the Agricultural course, the subject is treated from the economic standpoint, while for the students of the Scientific course it is in the main an educational study, intended to develop scientific habits of thought. No attempt is made to instruct the student in all branches of

Entomology; but as soon as he has attained a slight general knowledge of the subject, he is given some group of insects to examine and classify. Experience shows that much miscellaneous entomological knowledge, diligently acquired by the student while in class, can not be easily retained after graduation; because even if he gives considerable leisure time to the study, the complexity of it soon becomes bewildering, and he loses interest. On the other hand, if he takes up a single group, collects specimens, preserves them, classifies them, and notes the habits of the several kinds, he gets an excellent training in scientific method, the effects of which can never entirely pass away. He observes the way in which the different forms are related to their environment, he gets a practical knowledge of the meaning of *genus* and *species*, he comes habitually to look for minute distinctions and judge as to their value, he learns the proper use of scientific books, and, it is hoped, comes to appreciate more keenly than ever before the beauty in nature which everywhere surrounds him. And if he keeps up his work as a recreation study after leaving college, he finds himself well informed about one group of insects, and capable of continuing their study without bewilderment, adding to scientific knowledge.

Zoology is taught in the third term of the Junior year; and is intended to be introductory, so far as possible, to the entomological or zoological work to be done in the Senior year.

Physiology comes in the first term of the Junior year, and is taught mainly with an eye to questions affecting the human body, the proper understanding of which is so necessary for the well-being of a community. With similar ends in view, lectures on Hygiene for ladies have been arranged for in the third term in the Sophomore year. Apart from these considerations, however, the study of human Physiology forms an excellent introduction to the comparative anatomy and physiology which follows later in connection with various zoological studies.

DEPARTMENT OF ZOOLOGY AND PHYSIOLOGY.

Physiological laboratory practice is placed in the Scientific course, in the term following the text book study.

Scientific Drawing has been placed in the second term of the Sophomore year in the Scientific course. It had been found that so many students, on taking up Zoological studies, were unable to draw in any satisfactory manner, hence the introduction of this study.

Equipment.—The department has all the usual appliances, including some excellent models for use in teaching Physiology. During the past year the literature on Hymenoptera has been largely increased, for the advantage of students in Entomology, who are doing more or less original work. It should not be forgotten, in this connection, that the collections of the Experiment Station are available to students, and that original investigations in connection with the Station are continually being carried on under their observation.

Mathematics and Astronomy.

C. T. HAGERTY, PROFESSOR.

Mathematics.—In the Freshman year, the students of all courses receive the same instruction in mathematics. Nearly two terms are devoted to plane geometry; the remainder of the year, to solid geometry and a brief treatment of conic sections. Much time is given to "original exercises."

In the first term of the Sophomore year, all students are required to take advanced algebra, which consists of a review of the difficult parts of elementary algebra, and a treatment of the following subjects: undetermined coefficients, binomial theorem (any exponent), logarithms, scales of notation, theory of numbers, and variables and limits. In the second term trigonometry is prescribed for all except women. At the beginning of the study of plane trigonometry, students, in order to get a clear conception of the measurement of angles, will have practice with protractors, trigonometer, and a surveyor's transit. The line values of trigonometric functions are not considered until students can solve right and oblique triangles by the method of ratios. The tables of logarithmic functions are not used until students are familiar with the tables of natural functions. Goniometry, or the theoretical part of trigonometry, is not studied until the practical side has received considerable attention. The last three or four weeks of the term will be devoted to spherical trigonometry. The subjects of higher algebra treated in the third term are as follows: choice, chance, continued fractions, convergency of series, series of differences, reversion of a series, recurring series, exponential series, logarithmic series, general properties of equations, Cardan's Rule for cubic equations, Sturm's Theorem, Horner's Method, and complex numbers.

In the first term of the Junior year, students in the Irrigation Engineering and Mechanical courses are required to take analytic geometry. This work is optional in the Scientific course. The mathematical studies of the second and third terms are made optional. Analytic geometry is taught in the first term and five weeks of the second term. A number of the higher plane curves and geometry of three dimensions receive considerable attention. The remainder of the year is devoted to the differential and integral calculus. Taylor's Elements of Calculus is the text-book used.

The instruction in all the branches of mathematics will be made as practical as possible.

Astronomy.—In the third term of the Senior year, all students of the Scientific and Irrigation Engineering courses are required to take astronomy. In the brief time allotted to this subject, only a very general knowledge can be acquired. The work will be chiefly descriptive and historical in character; but some knowledge of trigonometry is essential in order to understand some of the subjects treated.

Equipment.—This department has a portable equatorial telescope with 5-inch objective and manifying powers ranging from 100 to 400, planisphere, 24-inch slated globe, Kennedy's dissected geometrical blocks, and trigonometer.

Engineering.

HORACE ROPES, PROFESSOR.

CHARLES MILLS, INSTRUCTOR IN SHOP.

This department offers two regular courses, each four years in length:—

I. Mechanical.

II. Irrigation Engineering.

Graduates, and others of sufficient attainments, can arrange for advanced, or special work, in either of these courses, by obtaining special permission from the Faculty.

Instruction is given by lectures, recitations and practice so combined as to constitute a symmetrical course of study. Our endeavor is to provide the student with a broad foundation of theoretical and general knowledge, together with a liberal amount of actual practice in his chosen profession, so that on graduation he may be competent to enter at once upon the duties of shop or office, and earn fair compensation as a useful constructor and designer.

During the first three years, the studies of both courses are identical. The great difference between the courses is to be found in the nature of the practice work and drawing.

The mechanical students confine themselves to shop work and mechanical drawing, while the students in irrigation work undertake instead, surveying operations, mapping and topographical drawing.

In each course, much time is necessarily devoted to higher mathematics and technical subjects; yet certain other fundamental studies, necessary for a broad and liberal education, such as history, civics, political economy, languages, literature, chemistry, and elocution are amply provided for.

Every young man should acquire familiarity with the practical side of his profession; therefore special prominence is given to the element of practice. Practice work in both departments is under the direction of practical men; and the work in shop and field will be made to conform closely to actual business methods.

I.—MECHANICAL.

The design of this course is to prepare young men for active work as managers, constructors or inventors of machinery, in any of the various branches of Mechanical Engineering.

The student is given a thorough training in the *theoretical* branches underlying the science of machines, together with a clear understanding of the practical construction of mechanical devices.

In addition to the advanced mathematical and general studies common to other courses, this course includes instruction in Free-hand and Mechanical Drawing; Descriptive Geometry; Theoretical and Applied Mechanics; Strength of Materials; Machine Design; Steam Engineering and Shop Practice.

Free-hand Drawing.—The importance of Free-hand drawing as a discipline for the powers of observation can hardly be over estimated.

It educates the eye to note accurately all details of position and form, and trains the mind and hand to reproduce correctly what the eye sees.

During the Freshman year, all college students are required to take free-hand drawing, five hours per week, for the entire year; except the Engineering students, who will commence mechanical drawing in the third term of that year.

Instruction in free-hand work will comprise exercises in outline sketching from plates and models; also in the principles of perspective, and of light and shade, as applied to natural objects and landscapes.

Mechanical Drawing.—This course embraces instruction in the use and care of drafting instruments, exercises in geometrical constructions, lettering, plane and isometric projections, shading and coloring, and the theory of shadows and perspective; followed by detail and assembled working drawings of machinery, with tracings and blue prints therefrom.

Throughout the Junior and Senior years Mechanical Drawing is merged into Machine Design, of which it forms an important part, and affords constant opportunity for further practice in making detail working drawings of standard types of machinery.

Descriptive Geometry is taught to those electing either of the Engineering courses. The principles of orthographic, spherical and isometric projections, of developments of lines and surfaces, etc., are fully discussed in the class room; and a great variety of problems, illustrating both general and special cases, are solved and constructed by the student.

In *Theoretical Mechanics* the general laws of statics and dynamics are studied with reference to solids, liquids, and gases.

Numerous problems are solved illustrating the practical application of the principles of composition and resolution of forces, the determination of the center of gravity of surfaces and solids, effect of friction, transmission of force by the various simple machines, the pressure and flow of fluids, accelerated motion as observed in falling bodies, constrained motion and centrifugal force, energy, impact, etc.

In *Applied Mechanics* the fundamental principles are applied to the solution of a wide range of problems relating to the strength of beams, columns, and girders; the forces acting on cranes, derricks, and trusses; the bursting strength of pipes, cylinders, and boilers; the design of fly wheels and rotating parts; the torsional strength of axles and shafts; eccentric and cam motions; and many problems pertaining to the scientific construction of steam and hydraulic motors and machinery in general.

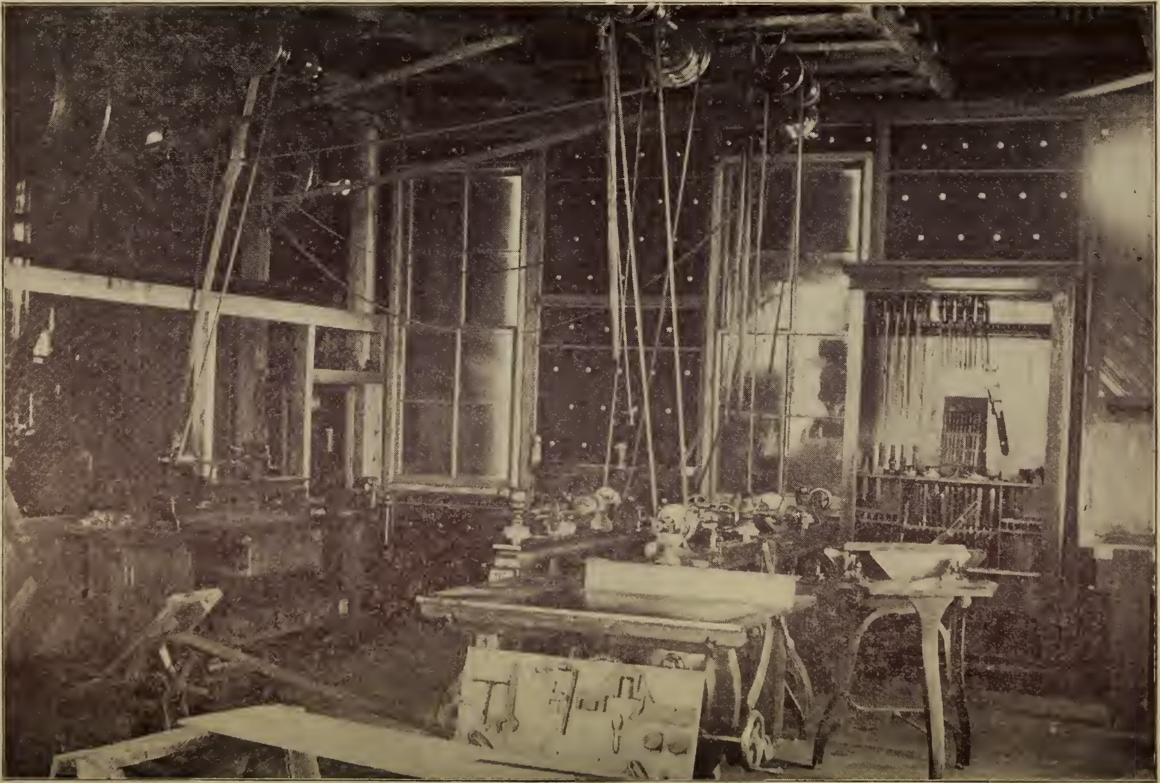
Strength of Materials.—This subject includes the study of the characteristics, method of manufacture, and useful properties of the various materials of construction, such as the common metals, stone, timber, brick, cement, etc.; an investigation of their strength, elasticity, and other physical properties; also the proper shapes, to offer the greatest resistance under given conditions of stress.

Machine Design.—This work is done principally in the drawing room, where the time is devoted to a thorough comprehension of the elements of machinery, such as nuts and bolts, rivets and riveted joints, journals and bearings, pulleys, gears, connecting rods, etc. Instruction will also be given relative to the adaptability of different materials, their comparative strength and economy, the arrangement of machine plants and the transmission of power by shafting, belts and cables.

During the Senior year, the work on this subject will include the design of a one hundred horse power, high speed steam engine, and problems in valve diagrams.

In *Steam Engineering* the student is made familiar with various types of steam engines and boilers in common use. The relative merits of simple or compound, condensing or non-condensing engines of modern types are discussed.

The application of analytical and graphic methods to the design of the crank shaft, cross-head, fly wheel, governor, connecting-rod, and the different forms of valve, and cut-off motions are all carefully explained. Special attention is given to the use of the indicator and planimeter in the measurement and computation of the power of an engine. In this connection Thermodynamics, or the theory of the



WOOD SHOP.

action of heat upon various gases and vapors, will be taught, and its principles applied to hot air, gas and steam engines.

Shop Practice, offering, as it does, practical illustrations of the precepts taught in the class-room, undoubtedly is a most essential part of the Mechanical course, and this work is given a very prominent position in that course. At the same time. it is believed that this training is valuable for men in every walk of life. The farmer will profit no less than the scientist, or the manufacturer, by a knowledge, which gives him a better understanding of the working of his machinery, or how to keep it and his buildings in repair.

Accordingly every male student, in the regular college courses, is required to take Shop Practice during the Freshman year. This work will consist of one term in Carpentry, one term in Wood Turning, and one term in Blacksmithing. The time allotted to practice will be seven hours per week, and the exercises given will be the same as for the regular Mechanical students.

For the regular student in Mechanics, the manual training covers four years; but even in his case, the primary object of this shop course is not the teaching of any trade complete, so that he may immediately be able to compete with the skilled workman; but rather to give a comprehensive view of the scope of the various trades, which enter into, or are closely allied to the manufacture of machinery.

It will embrace sufficient instruction in the trades of the wood turner, carpenter and cabinet-maker, blacksmith, moulder and founder, pattern maker and machinist, to enable a graduate of this department to intelligently superintend and successfully direct work depending on a knowledge of these trades. In addition to the liberal education acquired, it is also believed that graduates from this department will be quite as skillful mechanics as ordinary apprentices who have served three years in a shop. This result is attained by providing a great variety of work, and at the same time maintaining a high standard of workmanship, so the progress of a student may be both rapid and thorough in a knowledge of shop practice, and in the best methods of construction.

All the exercises are performed under the immediate oversight of a skilled workman, and with the advantage of the best obtainable tools and machinery.

Beside the general training in free-hand and instrumental drawing, students will have practice in making working drawings of machines and analyzing existing machines, with reference to their strength and proportion of parts.

Equipment.—This department has a separate building devoted exclusively to shops, engine and store rooms.

The wood working room is 30 feet by 34 feet. It is equipped with six cabinet-maker's benches, and twelve sets of carpenter's tools. There are five wood turning lathes, all of different designs, thus exhibiting the various types of the best modern machines of this class; one combination rip and cross-cut circular saw table; one Fox trimmer; a large forty inch grindstone, run by power; and numerous smaller tools and appliances adapted to special lines of work.

In the forge room are six forges of the latest model, with improved underground arrangement of the blast and exhaust pipes. Each forge is fitted with a full assortment of tongs, hammers, swages, fullers, etc. An eighteen inch drill press, and a punching and shearing machine form a part of the outfit of this section.

To drive the machinery, there is an eight horse-power vertical engine, supplied with steam from a twelve horse-power water-tube boiler, using petroleum for fuel. Each student is required to run this engine and boiler as part of his shop practice; and he receives instruction in the care of engines and boilers, the control of steam pressure and water supply, and the manipulation of the steam pump and injectors.

In the draughting-room, there is an excellent apparatus for blue-printing; also many plates, and photographs of different classes of machinery.

Arrangements have already been made to greatly enlarge the Mechanical Building next year, by the addition of a machine shop and foundry; as well as separate rooms for laboratory, recitation and drawing purposes.

The exercises for practice are as follows:—

WOOD SHOP.

Bench Work.—Instruction in the use and care of edged tools, and the methods of laying out work with the square and guage followed by operations involving sawing, planing, mortising, tenoning, dovetailing, framing and paneling.

Machine Work includes sawing with circular, band and scroll saws; in planing with surface planer and jointer.

Wood Turning embraces examples in straight, shoulder curved work, and chuck work, in both hard and soft woods; and polishing and finishing of same.

Pattern Making consists of a carefully selected set of exercises, designed to bring out the principles underlying the pattern maker's trade; all supplemented with explanations as to the best method of constructing the pattern with due regard to shrinkage, draft, etc. Examples will be given of patterns and core boxes for straight faced and grooved pulleys, gears, pipe fittings, etc.

FORGE SHOP.

In blacksmithing, the student is taught the care and management of his fire, forging and welding of iron, forging, annealing, hardening and tempering of steel. The exercises include the making and tempering of punches, drills, chisels and lathe tools.

FOUNDRY.

The student will there have practice in molding in green sand, dry sand and loam, core making, mixing and melting of metals, and cupola management. He will be required to make a full set of castings from the patterns, which he has made in the earlier part of the course.

To test the student's knowledge of pattern making and foundry work, he will be examined on several blue prints of machine castings.

MACHINE SHOP.

Machine Work in Metals consists of exercises so designed as to exhibit the chief uses of the engine lathe. planer, drill press, milling-machine and shaper. Practice will also be given in chipping, filing, scraping and polishing.

This work will occupy the time of the student until the second term of the Senior year. In that term he will make a final or "graduating piece," which may be a model of some mechanical movement, or one or more parts of some full size machine.

During the third term of the Senior year, members of that class may obtain permission, granting free access to the shops, to do work in connection with their theses.

II.—IRRIGATION ENGINEERING.

This course is intended to cover, in a general way, the entire scope of Civil Engineering; but especially so much of the theory and practice of that profession as applies particularly to the construction and operation of irrigation works.

The theoretical instruction is accompanied and illustrated by a large amount of practice in designing and staking out canals, reservoirs, dams, headgates, flumes, conduits, escapes, drops, etc.

This course, in addition to the general studies common to the other college courses, includes instruction in Theoretical and Applied Mechanics, Surveying, Elements of Geodesy,

THE FORGE SHOP.

Hydraulics, Roof and Bridge Design, Foundations, Masonry Construction, Drawing, and Field Practice.

The instruction in *Mechanics* is the same as that given Mechanical students, except theory of structures is taken in place of theory of mechanism.

In *Surveying* the instruction will be such as to render the student familiar with the principal instruments and methods used in land, topographical, city, and railroad surveying. He will have practice in the use of the compass, engineer's transit with stadia and solar attachments, engineer's level, plane table, prismatic compass, aneroid barometer,clinometer, optical square, planimeter and pantograph. Surveys are made, notes plotted, and areas computed. Some time is devoted to the study of the laws and court decisions relating to boundaries, re-location of lost corners, etc. Students will have practice in determining the true meridian and latitude, by observations of the north star and of the sun. Topographical maps must be made from the field notes.

Instruction in *Geodesy* will include explanations of the instruments, methods and formulas employed in spirit, barometric and trigonometric leveling; also lectures and practice with reference to measurement of base lines, establishment of stations, measurement of angles, and the computations necessary to reduce the triangulations.

The course in *Hydraulics* includes the application of theoretical principles to the ordinary problems of engineering practice; namely, the design of dams, reservoirs, pipe lines, canals and other structures; also actual work, with weirs and current meters, in the measurement of water flowing in streams and canals.

In the subject of *Roofs, Bridges and Arches*, a thorough drill will be given in the methods of determining stresses, and in the details of construction. Much attention will be paid to the practical designing of such structures in wood, iron, and masonry. During the Senior year, each student will make a full set of drawings for a bridge, or roof truss, of his own design.

Foundations and Masonry Construction will include descriptions and comparison of the various methods of pile, crib and masonry foundations; the testing of stone, brick, cement and lime; the strength, comparative efficiency and cost of timber, brick, concrete and stone structures; stability of, and estimates of cost for dams, culverts, arches, retaining walls, gate piers, etc.

The Free-hand and Mechanical Drawing are the same, in the two Engineering courses, until the end of the middle term of the Sophomore year. Those taking the Irrigation course will then drop mechanical drawing, and, instead of it, take topographical mapping, stereotomy, and plans and details of engineering structures.

In addition to the *Field Practice* already specified in connection with land surveying, measurement of flow of water in streams, etc., the students will be required to make preliminary and final surveys for a reservoir and system of irrigating ditches, run the curves, set grade and slope stakes, calculate the cubic contents of excavations and embankments, estimate the cost of various structures entering into the work, and draw specifications covering all details.

A full set of maps and profiles must be made from the field notes.

The *Equipment* of the Irrigation Department consists of a varied assortment of expensive Engineering instruments, and all the minor appliances necessary to properly carry out the work outlined above.

THESIS.

As a condition of graduation, each Senior in the Engineering courses must prepare a Thesis and Thesis Drawing, which, if accepted, shall remain the property of the college.

The Thesis must be on some suitable subject, which shall involve experimental investigation and research on the part of the student. The Thesis Drawing should be illustrative of the Thesis, and is intended as a finishing piece to show the student's proficiency in that line of work.

An excellent department library containing standard works and authorities on nearly every subject pertaining to the engineering profession, is readily accessible to the students for reference purposes.

Physics.—Sophomores of all courses are required to recite five times weekly, the first and second terms, and four times weekly during the third term, upon text-book work in Physics.

The work of the first term will consist of the discussion and proof of the laws of matter, dynamics, and heat, as given in Gage's Elements of Physics. Considerable attention will be given to the practical mathematical application of the principles deduced.

The entire time of the second term will be devoted to the subject of electricity, while the subjects of sound and light will be the work of the third term.

The college is not yet supplied with a physical laboratory, but it is equipped with a considerable amount of apparatus, with which all the simpler experiments may be performed in the class room by the pupils and teacher.

History and Political Science.

JOHN P. OWEN, PROFESSOR.

History.—U. S. History is completed in the Preparatory Department, as is also a short course in the elements of civil government. Ancient history is studied by all students in the first term of the Freshman year; mediæval and modern history, by all in the second term of the same year. English history will be studied by the students of the Scientific and Agricultural courses in the third term of the Sophomore year. The subject of Recent History is studied by the women of the Scientific course in the second term of the Sophomore year.

In the study of history the aim is not so much to memorize facts, as to understand them. As far as practicable the "seminary" plan will be used, the object being to train the student to think for himself and to lead him to consult *historical sources*.

In general history Sheldon's History is used as the text-book; in English history, Montgomery's, supplemented by Green's History of the English People. Although text-books are used, the instruction is largely supplemented by readings and lectures.

One of the objects of this course is to inculcate in the student a love for the study of history, and to teach him to form his own conclusions from the facts presented.

The library to which the students have access contains a very fair amount of first-class historical literature, which covers well the general field of history. Students in all history courses will be required to prepare three papers each term on subjects assigned.

Political Science.—The subject of civil government, supplemented by lectures on constitutional law, is taken by all students in the first term of the Junior year. The text-books used are: Fiske's Civil Government, Woodrow Wilson's The State, Cooley's Principles of Constitutional Law, and McCleary's Civics.

Constitutional and political history lectures are given to students of the Agricultural and Scientific courses in the first term of the Junior year. Johnston's American Politics and Burgess' Political Science are used.

Political Economy.—This subject is pursued during the third term of the Senior year. Instruction will be given by means of recitations and lectures.

The current practical problems of industrial society are also discussed on the basis of economic principles. Each student will be required to prepare an original paper upon some topic which will be assigned him.

The present industrial and financial embarrassment shows the importance of a knowledge of economic principles. The relations of capital to labor, the tariff, *bi-metalism*, banking, and other important questions relating to the welfare of our nation, are carefully studied and discussed.

Mill's Political Economy is used as a basis, but the students are required to read extracts from a number of standard authors, among whom are Adam Smith, Fawcett, Walker, Thompson, Bowen, Wayland, and Perry.

History of Civilization.—The Seniors of the Scientific course are required to take this subject in the first term. Guizot's Lectures will be used as a guide. A considerable range of literature will be referred to, and essays on various topics required.

Languages.

English—JOHN P. OWEN, PROFESSOR.

In this department the students pursue a systematic course in the English Language and Literature.

Students of all courses take rhetoric in the first term of the Freshman year. Grammar and rhetoric each having been studied for an entire year in the Preparatory Department, the work of this term will be *advanced* rhetoric.—Text-book, A. S. Hill's Rhetoric.

The work in rhetoric as an art is practiced throughout the entire four years of the college course, all students being required to meet one hour each alternate week, to practice essay writing; and while the study of text-books and rhetorical method ends with the first term of the Freshman year, the essay work is carried on with English and American literature, political science, and history to the end of the Senior year.

English Literature is required in all courses, in the first and second terms of the Junior year. American Literature is studied by the Agricultural and Scientific students in the third term of the Junior year. In this study the chief aim is to acquaint the student with the best literature and to cultivate in him a taste for it. One term, of the three devoted to this subject, will be given to the study of the history of literature, biographies, and books; the other two terms will be given to the study of the masterpieces of the language.

Swinton's Studies in Literature, Hale's Longer English Poems, Brooke's Primer, Hawthorne and Lemon's American Literature, and Phillip's English Literature are the text-books used.

All students in literature will be required to read standard works and will be examined on such reading.

In the Scientific course, literary reading occurs as a practice in the Freshman year and a term in the Junor year. Opportunity is here given for a wide range of literary study and reading.

As far as possible this reading will be arranged so as to assist the student in other studies and researches. It will be made intensive rather than extensive. Critical and systematic, rather than superficial and indiscriminate, reading will be encouraged.

The library contains a great number of the best books, and additions are constantly being made thereto; so that no difficulty, as to books, will be experienced in carrying on this work.

Rhetorical Exercises.—All students will be required to appear in public each term with an oratorical exercise. This exercise will be considered equal to one-half in making term grade in English.

Latin.—ALBERT E. DAVISSON, PROFESSOR.

In all courses, the study of Latin is optional with Spanish in the second and third terms of the Freshman year and throughout the Sophomore year; in the Junior year of the Scientific course, two additional terms of Latin are offered.

In the first two terms of the course, the student is expected to acquire a thorough knowledge of declension, comparison, conjugation, and the elements of Latin syntax. This work is accompanied by exercises in translating Latin into English, and English into Latin. Harkness' First Year in Latin is the text-book used.

The work of the third term is a study of the first two books of Caesar's Gallic War.

In the fourth term, Sallust's Catiline is read. The student is also led to see how the style of Sallust differs from that of Caesar.

The translation of Cicero's orations against Catiline is the work of the fifth term.

Two books of the Aeneid of Vergil are read in the sixth term and a study of Roman mythology is made.

In the seventh term, selections from the poems of Ovid are studied, and lectures are given on Roman manners and customs.

Spanish.—IDA M. JONES, INSTRUCTOR.

As may be seen from the courses of study, Spanish is optional with Latin in all the courses in the second and third terms of the Freshman year, throughout the Sophomore year, and in two terms of the Junior year in the Scientific course.

In view of the fact that 30,000,000 people in the Western hemisphere speak Spanish, and that it is the language of commerce of all the people south of the Rio Grande, it has been thought best to provide an opportunity for our students to acquire this language.

Situated, as this College is, near the border of the Republic of Mexico, with this tongue in common use among the majority of our people, the opportunity here afforded to acquire a working knowledge of this language, next to English the most useful for Americans, is certainly excellent, and should be improved by all who expect to enter upon any field of labor among the Spanish-speaking people. An additional reason for the study of Spanish is that the Mexican Government is about to establish a system of public schools in every part of the republic, thus giving occupation to a great many teachers, many of whom must come from the United States; but they must be good Spanish scholars. In the time alloted to this study, a fair knowledge of the language may be obtained.

The elements of the language are acquired by the study of Rosenthal's Grammar, with Worman's First and Second Books. Conversation and sight reading will be given twice a week with additional work in dictation.

The work in the Sophomore year will consist of translations of Moratin's comedy El si de las Niñas, oral and written translations of English selections of various styles, Spanish idioms, and the study of Knapp's Grammar.

In the Junior year the students will be required to do private reading in the course from Cervantes, Calderon, Moratin, and others. Translations of one play of Lope de Vega, selections from Don Quijote and Gil Blas, the writing of business letters, and the study of Spanish literature will be included in this year's work.

The following books of reference are accessible to the students: Sales'Grammar, Becker's Spanish Idioms, and Ticknor's History of Spanish Literature.

Mental Science.

SAMUEL P. MCCREA, PROFESSOR.

Psychology.—Many persons have acquired some knowledge of mind without ever having made a thorough and systematic study of it. But their knowledge having been gained from experience is fragmentary and disconnected. It is not scientific because it lacks the qualities of completeness and consistency. When the study is pursued as a science the inequalities of individual experience are compensated by reenforcing them with the aggregate of all other experience. "Psychology aims to inventory the facts of mind and to arrange them systematically, so that each fact may help to explain all other facts, and in its turn may be explained by all." The elementary work of classifying the powers and faculties of the mind is followed by the higher process of reflection on the modes of its activity. It is only by reflection and generalization that we at last begin to understand the real nature of mind. As we proceed two worlds open to our vision, the outer through sense perception, and the inner through consciousness. In the former all things are dependent and relative. We can see things in it, only as related to their environments, and thus as having existence in time and space. In the latter we behold self-activity which is not limited by environment, but a self determined energy manifested in the forms of feeling, volition, or thought. Viewed from another standpoint the mind is influenced by the true, the beautiful, and the good. As we proceed in our investigation we are able to discern those truths which have most influenced man, and which have been the greatest power for his uplifting and regeneration; namely, God, freedom, and immortality.

Logic.—Man can aspire to nothing higher than to live nobly and well. But such a mode of life is always the product of correct thinking. The best training in thinking must always be intelligent and systematic, and a foundation for this can be laid only by a comprehensive and systematic study of the forms of thought and the laws for their government. The science of the laws of thought is logic.

History of Philosophy.—This work begins with a brief consideration of oriental thought. It then treats the history of philosophy in its relation to psychology, and thus shows the growth and development of that science. The work begins with Greek philosophy and ends with that of Herbert Spencer.

Elocution and Physical Culture.

ELLEN F. GIBSON, INSTRUCTOR.

The ability to read well is no slight accomplishment, and can only be acquired by persevering effort, under the careful guidance of a skillful teacher. Systematic and thorough instruction will be given in reading, particular attention being paid to Articulation, Inflection and Emphasis.

Voice culture will include tone development and projection. As to the thoroughness of this training there can be no doubt, as students who have received one year's careful drill from the Instructor, and who have natural talent for Elocution, are received as Seniors in the Boston School of Oratory.

The Physical Culture will include the Delsarte System of Physical Culture and Gesture, as well as the Swedish System of Gymnastics and Free Gymnastics; and is designed to develope gracefulness of carriage, ease of appearance in public, freedom of movement, as well as greater bodily vigor, and better health.

Lessons in Physical Culture will be given daily, and Elocution lessons every alternate week throughout the course.

The Instructor is a graduate of the Boston School of Oratory, class of 1888; and has had several years experience as an teacher of Elocution and Physical culture in the Academies of Maine.

Preparatory Department.

ALBERT E. DAVISSON, Principal.
IDA M. JONES, Assistant.
ELLEN F. GIBSON, Assistant.
J. A. CHRISTMAN, Penmanship and Bookkeeping.

The purposes of this department are to prepare students for admission to the Freshman class of the college, and to furnish a fair general education to those whom circumstances will not allow to take a college course.

The instruction is mainly given by the Principal and his two assistants, but, some subjects are in charge of the college professors.

To enter the first year class, applicants must be able to pass an examination in the following subjects: reading, spelling, the elements of English grammar, elementary geography, and arithmetic through the fundamental rules, greatest common divisor, least common multiple, common and decimal fractions, and United States money. To secure admission to the second year class, applicants will be required to pass a creditable examination in reading, spelling, complete geography, grammar through the parts of speech, and, in arithmetic through percentage. To be admitted to the third year class, students must have a thorough knowledge of all the common branches.

The course of study covers three years. The first two years are devoted to the common branches and to drawing. The work in some of the subjects studied in the two lower classes requires special mention. In Language, the student is led to use the language correctly, little attention being paid to technical grammar; he is also taught the elements of composition. The work in arithmetic includes the following subjects: denominate numbers, longitude and time, elementary mensuration, percentage and its applications, exchange, partnership, proportion, square and cube root, and analysis. Special attention is called to the work in American literature; this subject is studied in the second year, and is of great value. The student learns and is required to interpret the principal figures of speech, is led to comprehend the thought and feeling of the selections studied, and is expected to prepare papers showing that he has a knowledge of the matter, method, and style of the various authors. The work includes Hawthorne's Wonder Book, Longfellow's Evangeline and Courtship of Miles Standish, Whittier's Snow Bound, and Lowell's Vision of Sir Launfal. The subjects studied in the third year are as follows: review of arithmetic, algebra through quadratics, advanced United States history, civil government, physical geography, technical grammar, composition and rhetoric, word analysis, bookkeeping and drawing.

Those who expect to take the course in Stenography and Typewriting will be allowed, in the first and second terms of the third year, to substitute commercial arithmetic for algebra, and, in the third term, commercial law for algebra. This substitution will be allowed only upon a written request from the parent or guardian.

Students in this department enjoy the same library and lecture privileges as the college students, and are governed by the same rules.

On the following page is a tabulated statement of the course of study for the three years.

FIRST YEAR.

FIRST TERM.	SECOND TERM.	THIRD TERM.
Reading.	Reading.	Reading.
Geography.	Geography.	Geography.
Arithmetic.	Arithmetic.	Arithmetic.
Language.	Language.	Language.
Spelling.	Spelling.	Spelling.
Penmanship.	Penmanship.	

SECOND YEAR.

FIRST TERM.	SECOND TERM.	THIRD TERM.
American Literature.	American Literature.	American Literature.
U. S. History.	U. S. History.	U. S. History.
Language.	Language.	Grammar.
Arithmetic.	Arithmetic.	Arithmetic.
Spelling.	Spelling.	Spelling.
Drawing.	Drawing.	Drawing.
Penmanship.	Penmanship.	Physiology.

THIRD YEAR.

FIRST TERM.	SECOND TERM.	THIRD TERM.
Algebra or	Algebra or	Algebra or
Commercial Arithmetic.*	Commercial Arithmetic.*	Commercial Law.*
Grammar.	Rhetoric.	Rhetoric.
Advanced U. S. History.	Civil Government, ½ term.	Physical Geography.
	Physical Geog., ½ term.	
Word Analysis.	Arithmetic.	Bookkeeping.
Drawing.	Drawing.	Drawing.

* Optional for students who expect to take the course in Stenography and Typewriting.

Business Department.

In view of the facts that there are no schools in southern New Mexico that furnish thorough and complete commercial courses, that the demand for such instruction is great and increasing, and that such training is of the most useful and practical character, the Board of Regents has established a Business Department in this college. In order that this department may not interfere with the regular college work, it is thought best to make it separate and distinct, to require a certain standard of admission, and to have definite courses of study. This department includes three courses, each complete in itself; namely, Course in Bookkeeping, Course in Stenography and Typewriting, and Course in Telegraphy.

Upon the completion of any of the courses a Certificate will be given.

Requirements for Admission.

To begin the course in Bookkeeping or Telegraphy the student must be fifteen years of age, and must have completed arithmetic, grammar, geography, and U. S. history, and should be able to read and spell well. Students who have completed this work in the Preparatory Department of this college, will be admitted without examination; also those students who can produce a certificate from the Principal of any commissioned high school or graded school in the Territory that the above named branches have been completed satisfactorily. All other students will be examined.

To begin the course in Stenography the student must be sixteen years of age and must have completed all the work of the Preparatory Department of this college. Students who have completed the work of the Preparatory Department and graduates of any commissioned high school in the Territory, will be admitted to these courses, without examination. All other students will be examined.

FEES.

The following are the fees in the Business Department:

Entrance fee	$5.00
Deposit for care of books, etc.	2.50

PURPOSE.

It is not the design of the Business Department to attempt to fit students for bookkeepers, stenographers, and telegraph operators in the shortest possible time; or to use all of the time of the student for purely technical instruction and practice. The demand at the present time is for well educated, thoroughly qualified bookkeepers, stenographers, and telegraph operators. It should be distinctly understood that this institution offers no inducements to those who are determined to enter upon any of these lines of work, without stopping to lay the foundation of a good general education. Experience will show that persons of limited education, if able to secure situations at all, invariably fall into the lowest class of workers, and are worth little to those who employ them; while the services of those who are carefully trained and well educated, are sought and liberally paid for.

Students will not be permitted to devote themselves exclusively to bookkeeping, stenography, or telegraphy, who can not show to the satisfaction of the faculty that they have completed. in a satisfactory manner, in some school of known thoroughness, the additional studies named in that Business Course they are pursuing. Nor will students be permitted to pursue more than one business course at a time, except by vote of the faculty; and such permission will only be granted to students whose age, maturity, and scholarship leave no doubt of their ability to do the work.

It is believed that these courses offer much for those who wish this kind of training.

Each Instructor has had careful training and practical experience in his line of work.

All students of the Business Department enjoy the same library privileges as the college students.

Bookkeeping.

J. A. CHRISTMAN, INSTRUCTOR.

It is not the aim to find in how short a time the student may be fitted for the duties in the counting room but rather to train and equip him in such a manner that he may be able to meet the exacting demands and to perform the duties of accounting in modern commercial life. Thoroughness, practical and systematic work, and rigid inspection and examination of books, letters, and papers relating to the work will characterize the work. Under no circumstances will work be passed and credited unless it is strictly up to the standard required. Both double and single entry will be taught.

In Theoretical bookkeeping the student is made familiar with the first principles of the science of bookkeeping. He is guided carefully until he can master the simpler forms of the daybook, journal, cashbook, and ledger, and can post and close a ledger correctly. Frequent exercises and class drills are given in journalizing and closing ledgers. Thus the student will gradually be required to master all forms and sets of books in the various lines of business, embracing single partnership, co-partnership, joint-stock companies, corporations, etc.

In the Actual Business Practice will be put into practice that which has been learned in theory. Theory and Actual Business Practice will be so proportioned and combined as to produce the best practical results. Lectures and exercises will be given throughout the course on opening and closing books, auditing books, and higher accounting.

Bookkeeping for the third year Preparatory class, Shorthand, and Telegraph students will be taught in the third term. The work will comprise single and double entry bookkeeping; and as much work will be done as can be performed within the limited time allowed.

The work to be accomplished is to give the student a clear insight into theoretical bookkeeping so that he may be enabled to thoroughly understand its fundamental principles; and be entirely familiar with the simpler forms of the daybook or blotter, journal, cashbook, ledger, statements, and the opening and closing of books. Much is offered in this work to those desirous of acquiring a limited knowledge of bookkeeping.

Penmanship.—The primary object of writing is, that it may be easily read; therefore legibility is the most essential feature in penmanship. Next in order to legibility is rapidity.

Business writing is taught in an interesting and systematic manner. The latest and most approved methods and systems will be used. No one branch of study in the Bookkeeping course is comparatively of greater importance than penmanship. The student is taught to develop and acquire a free and easy movement thereby enabling him to learn to write an easy, rapid and legible hand-writing.

The advantages of a good hand-writing are many. It is one of the best recommendations in securing positions. An opportunity is afforded all Business students to be instructed in the art of penmanship in a first class and systematic manner.

Commercial Arithmetic.—Mathematical accuracy, rapidity and efficiency in the counting-room are absolute requisites in our present business life. This subject will be taught throughout the entire Bookkeeping course. Those processes, commonly called "lightning calculations," will be taught and practiced throughout the work. To compute correctly and rapidly is the aim of this work.

Commercial Law.—All young men and women should be familiar with commercial law. The work will be carried on by lectures and recitations. The purpose is to give a clear insight into the laws governing business transactions so that the student may be enabled to distinguish between legal and illegal contracts; may learn how to draw up the various legal documents; may know the laws of negotiable paper, agency, partnership, corporations, joint-stock companies, real estate conveyances, interest guaranty, insurance, shipping, etc.

Spelling.—Especial attention is given to the subject of spelling. This branch is of the utmost importance to all and especially so to those contemplating commercial pursuits. To become proficient in spelling should be the aim of every one. Regular work will be carried on in this branch throughout the Bookkeeping course. Commercial terms will be one of the features.

Grammar and Letter Writing.—Careful instruction will be given throughout the entire year in grammar and letter writing to the students of this course and to those in the course in Telegraphy. The end to be attained is the easy and correct use of English, which is a most important element in education and one too frequently overlooked by those seeking commercial training.

Stenography and Typewriting.

F. E. LESTER. INSTRUCTOR.

The principal object of the course in Stenography and Typewriting is to thoroughly qualify the student to become a practical shorthand and typewriting amanuensis, so that at the completion of the course he may be prepared to accept a position as such. Naturally, the larger portion of the time of the student pursuing this course is devoted to stenography and typewriting. In the first and second terms, three hours a day are given to stenography and one to typewriting; and in the third term, two hours a day to stenography, one to typewriting, and one to office work. The remaining studies pursued in this course are such as strengthen the student in those subjects which are more or less necessary to the competent stenographer, and together call for from two to three hours a day additional to the work in stenography and typewriting. They comprise commercial arithmetic and law, (required only if not previously completed in the Preparatory Department); ancient, modern, and English history, (required only when commercial arithmetic and law are not taken); penmanship, spelling, and bookkeeping. An excellent feature of the course is the provision made for the study of Spanish, which may be taken in the second and third terms of the year upon the recommendation of the Instructor. The commercial relations between the States and Mexico, as well as the South American republics, are such that the demand is constantly increasing for competent stenographers who are able to correspond in the Spanish language; while those who can take dictation in that language can readily command a high salary.

A good English education is an absolute necessity to the student in shorthand; without it he can never succeed. It is the foundation upon which all his stenographic acquirements rest. Too much stress can not be laid upon this fact, for it is probable that in the great majority of cases, the all-too-common incompetent stenographer of today fails because of imperfect preparation for his work and a deficient general education. It is, therefore, required of all students entering the course that they shall have completed the work in the Preparatory Department, or its equivalent. Almost of equal importance, is the necessity for thoroughness in the work done, and this is made a strong feature throughout. Superficial work in shorthand is nothing less than a waste of time, and it will not be allowed.

It will be seen that this course is one calling for a good preparation and an unusual capacity for hard work, and the student who wishes to enter this course must be able to fill both of these requirements. The average student can not become a proficient amanuensis in less than the nine months required in the course.

Shorthand.—Much care has been taken in the selection of what is thought to be the best system of shorthand available, for the success of the shorthand student depends largely upon his faith in the system he studies. The superiority of Graham's Standard Phonography, which is the system taught, has been proved conclusively by recent investigations, which have revealed the fact that more than 50 per cent of the official court reporters in the United States are Graham writers. The text-books used are the new edition of Graham's Handbook, and Graham's First and Second Readers, supplemented by other works.

The work of the year's course is divided into three parts. The first term is devoted to the elementary grade—a study of the principles of shorthand; the second term, to the intermediate grade—covering word-signs and drill in correct outlines; and the third term, to the advanced grade, in which the student confines himself largely to dictation in business correspondence, literary and general matter. Particular attention is given to correct business forms, commercial expression, and legal matter, and to careful training in the best outlines, by which alone a high rate of speed can be attained.

Typewriting.—The requirements of modern business demand only the expert typewriter operator, and the work of this course is such as to qualify the student to become such. The four-finger method is taught, and a complete text-book—Torrey's "Practical Typewriting"—studied in connection therewith. The practical work includes fingering, touch, copying, letter-writing, legal and commercial forms, spelling and punctuation, writing from dictation, mechanism and care of the machine, speed exercises, and transcription from shorthand notes. In the third term, one hour a day is devoted to office work, which includes thorough practice in letter-press copying, indexing and filing of names and letters, carbon and hektograph duplicating work, and mimeographing.

The department is well equipped with the best machines. The New Model No. 6 Remington is the principal one used, supplemented by the Remington No. 2. The Remington machine is more generally used in the business offices of the country than any other make; and the same key-board being adopted by several other machines, the Remington operator has the advantage of being able to manipulate other makes of machines, should occasion demand.

There is little doubt of a student, graduating from this course, being able to secure a position. Several students completing the course in the year just closed have secured good positions.

A certificate is given to students satisfactorily completing the course and passing an examination, the requirements of which are to be able to take from dictation ordinary business letters at the rate of 100 words per minute and transcribe the same from notes correctly on the typewriter at a minimum speed of 25 words per minute.

Telegraphy.

J. P. STEWART, INSTRUCTOR.

The purpose of the course in Telegraphy is to fit the student who completes it for the position of operator for any telegraph company, or station and express agent for any railroad. Good agents and operators are always in demand at remunerative salaries.

Three hours in the first and second terms, and two hours in the third term, are devoted daily to the study of telegraphy.

Individual instruction is given. For the general education of the student, he is required to take commercial arithmetic, grammar, and penmanship in the first term; commercial arithmetic, grammar, and spelling in the second term; and commercial law, railroad bookkeeping, spelling, letter writing, and bookkeeping with the stenography students in the third term. An able student may, upon recommendatión of his Instructor, be allowed to join the Freshman class in Spanish.

Bookkeeping, commercial arithmetic, commercial law, and penmanship are taught by the instructor in bookkeeping. Railroad bookkeeping is taught by the instructor in telegraphy. Students receive instruction in the making of reports, and the keeping of accounts such as are ordinarily required to be kept by station and express agents.

The students in telegraphy are arranged in groups according to their ability for speed in receiving messages. In this way all students may progress as rapidly as they are able to do so.

In order to receive a certificate at the end of the year, the student must have a grade of at least 70 per cent in all branches of this course, and attain a minimum speed of 25 words per minute in sending and 20 words per minute in receiving messages.

COURSES OF STUDY IN BUSINESS DEPARTMENT.

	BOOKKEEPING.		STENOGRAPHY AMD TYPEWRITING.		TELEGRAPHY.	
First Term.	Commercial Arithmetic	5	Commercial Arithmetic or Ancient History	5	Commercial Arithmetic	5
	Grammar	5	Rhetoric	5*	Grammar	5
	Bookkeeping	5	Stenography	5	Telegraphy	5
	Penmanship	5	Penmanship	5	Penmanship	5
Second Term.	Commercial Arithmetic	5	Com. Arithmetic or Med. & Modern History	5	Commercial Arithmetic	5
	Grammar	5	Spanish	5*	Grammar	5
	Bookkeeping	5	Stenography	5	Telegraphy	5
	Spelling	5	Spelling	5	Spelling	5
	Spanish	5*			Spanish	5*
Third Term.	Commercial Law	5	Commercial Law or English History	5	Commercial Law	5
	Letter Writing	5	Spanish	5*	Letter Writing	5
	Bookkeeping	5	Stenography	5	Telegraphy	5
	Spelling	5	Office Work	5	Spelling	5
	Rapid Calculation	5			R. R. Bookkeeping	5
	Spanish	5*			Spanish	5*
	PRACTICE.—Bookkeeping	5	PRACTICE—Stenography	5	PRACTICE.—Telegraphy	5
			Typewriting	2½	Bookkeeping, third term	5
			Bookkeeping, third term	5		

*May be taken only on recommendation of Instructor.

College Society.

The existing literary society of the college was organized October 25th, 1891, under the name of Alpha Chi. In 1892 this was changed to Columbian, and under this name the society has made steady and prosperous growth. Until about the middle of 1894-'95 only male students were admitted as members, but since that time the young ladies have had equal membership privileges. The object of the society is to promote and encourage conscientious and practical literary work by discussions, papers, debates, and such other exercises as the committee on programme may prescribe. The requirements for admission to the society are that members must be students of good standing in the College. They must also pay an entrance fee of one dollar, and dues of fifty cents each succeeding term. Regular meetings are held each week.

Officers:

F. E. Lester	President.
J. E. Casad	Vice President.
I. R. Mead	Rec. Secretary.
E. Wickham	Cor. Secretary.
F. Garcia	Treasurer.
A. M. Holt	Librarian.
E. J. Coe	Chaplain.
A. H. Peterson	Critic.
E. B. Holt	Vice Critic.
C. E. Mead	Marshal.

The *New Mexico Collegian* is published and managed by the Columbian Literary Society, under the supervision of the faculty. It was founded in February, 1893, and has been published regularly since that time, and has issued two excellent Commencement numbers. It is an eight to twelve page journal and contains frequent contributions from students, besides the usual matter found in college publications. It is issued about the fifteenth of each month during the collegiate year, and has a good circulation throughout the Territory, and one which is constantly increasing.

The interest of students in the journal has grown considerably since it was founded, and it appears to be especially valued by those who leave college, serving as it does to keep them in close touch with the institution and with their college friends. The *Collegian* is now self supporting, and has every prospect of being a successful journal. It will be enlarged and improved in the future as the support given it may warrant. All work in connection with its publication is entirely gratuitous. The subscription price is one dollar a year.

Athletic Association.

The growth of the Athletic Association has more than kept pace with the College. The number of members were greatly increased over that of last year.

The football team of 1894-'95 was the strongest team yet sent out by the College as was shown in the two games with El Paso.

The Third Annual Field Day was held on May 3rd. The program consisted of the principal sports, which were very hotly contested. Gold medals were awarded to the first and second all-round men.

The officers for 1894-'95 are as follows:—

A. M. Holt	President.
H. J. McGrath	Rec. Sec'y.
E J. Coè	Treasurer.

J. E. Casad, E. B. Holt, O. C. Watson, C. E. Rhodes, B. T. Davis, A. M. Holt, H. J. McGrath and E. J. Coe, Executive Board.

General Information.

The postoffice of the college is Mesilla Park, N. M. Mesilla Park is also the general freight and express office of the college.

Strangers will find it more convenient to stop at Las Cruces, and go temporarily to some hotel. They should then report to the president, who will assist them in finding a boarding place.

Students should be on hand the first day of the term. The necessity of this is too seldom realized. New students and those desiring re-examination should report on the day named for this work.

Students coming to the college over either the Atlantic and Pacific railroad, or the Atchison, Topeka & Santa Fé railroad, and paying full fare, are returned for *one-third fare.* When buying tickets, they must secure a receipt from the agent for the money paid. This receipt must be preserved or the reduced rate can not be obtained. This reduction in fare will be given only when the student returns at the end of the term.

TEXT-BOOKS.

Text-books are furnished by the college. They will either be sold to the student at cost, or they will be loaned. Students are required to deposit $2.50, in advance, to secure the proper care of college property, and the prompt return of books borrowed. At the close of the year, or when the student withdraws, this deposit is returned, unless damage has been done to the books or other college property. When this is the case the damage is assessed against the student, and any balance remaining of his deposit returned.

This deposit may be increased with students who are notoriously careless. Students who are able should purchase their books. Many of them will be needed after leaving school and they can be made to form the nucleus of a library, which every student should be encouraged to collect. Students who purchase their books will be more apt to properly care for them, and to grow into book-lovers than those who borrow them for a term or more.

STATIONERY.

As the college is distant about two miles from any store dealing in stationery, it has been found necessary for the accommodation of students, to carry at the college a small line of articles, such as paper, pencils, pens, etc., which are sold to students, for cash only, at a small profit.

FEES.

Entrance fee, each year, for all students	$ 5 00
Deposit fee, " " " " "	2 50
Students in Chemistry, deposit....	5 00
Students using horse stalls, per term.....	25
Students not citizens of the U. S., per term.	17 00

All fees must be paid in advance.

BOARDING AND OTHER EXPENSES

We hear much said these times as to the cost of education. Many parents would gladly give their children a college education if they felt able to do so. The cost of travel in a large territory is great, but this is offset by free text-books and practically free tuition. The cost of clothing is something; but students should be taught to dress inexpensively, yet neatly. Clothes cost a certain amount whether in school or at home. The cost of board at home is something, though this is seldom taken into consideration. Students need but little pocket money, and the social demands on all students are light. There will be but few occasions here for spending money unless the students make them. If young people whose parents are unable to assist them, really want a college education, they can find a way to secure it, though it be but a term at a time. There is a greater demand for labor in New Mexico than in the east; most kinds are better paid; and any young person with sufficient energy and ambition, can, in time, work his way through college.

As yet the college can do nothing toward furnishing board and rooms. Students, so far, have secured board and lodging in private families near the college at from $16 to $20 per month. Some students have taken rooms and boarded themselves at greatly reduced cost. In the west, where many boys have learned to cook, this plan has great advantages for those of limited means. A year's boarding by this plan, including room, should not exceed $100; and yet the student can have plenty of good, substantial food, and a comfortable room. Boarding clubs may be formed by students, and this is often a very good plan. With careful management this plan will reduce the cost of board and lodging to about $150.00 a year. Washing will cost each student from $1.50 to $3.00 per month. Students who propose to furnish their own rooms should provide for this before leaving home. The freight on such articles as will be needed and can usually be spared from home will be light. It is not economical either to rent or to buy.

As may be seen, a student can get through the year by self boarding for about $125.00; can board in a club and get through the year on from $150.00 to $175.00; and can board in a private family and expend from $200.00 to $250.00 according to his taste and means. It should be understood that all students are entitled to equal privileges in this institution; and will be accorded the same treatment, no matter what their condition in life. We believe that expenses here, (where free text-books, and almost free tuition are given,) will not run higher than in other institutions of similar character. Within reach of the college building are houses for rent at reasonable prices. Many families have moved here and resided in these or on rented ranches in the vicinity in order to give their children an apportunity to attend college. Whenever parents can do this, it should be done, as perhaps no other plan is so satisfactory.

PAID LABOR.

There is a considerable amount of paid labor on the farm, in the shops, and in the laboratories, that can be performed by students; and the policy will be to give it to students rather than to others. Some students have been able to earn enough during the past year, to pay their expenses; but those doing so have had constant employment in some subordinate position. No student should come expecting constant employment, or without sufficient means to pay the greater part of his expenses. The college can not undertake to furnish work for all students who wish it, or need it, in anything like sufficient amount to pay expenses; and even if it could, the student's time is needed chiefly for study, recitation, and practice. Still many worthy and industrious students pay a considerable part of their expenses by labor, which is given to those who are most trustworthy and meritorious; and who are regular and punctual in attendance, and correct in deportment. This labor is paid for at the rate of from 12½ cents to 15 cents per hour; but the faculty reserves the right to limit the amount of work any student may do.

DISCIPLINE.

The youth of New Mexico should esteem it a great favor that by the creation of the College of Agriculture and Mechanic Arts there has been provided for them the fullest and best opportunity to secure a practical education. Those students who enjoy the advantages here offered, should feel that excluding them because of their misuse or abuse of the privileges afforded, is the greatest penalty that can be inflicted.

Students who enter this school are expected to be honest, truthful, polite, attentive, and diligent. The authority exercised over them will be strict, yet at the same time reasonable and considerate. It should be understood that the college is for those students who are capable of a fair degree of self control, and who come here to fit themselves for useful and honorable places in life. If, after a fair trial, the influence of any student is found to be detrimental to scholarship, morals, or good order, dismissal will follow. The following are strictly forbidden: 1st, Indulging in the use of intoxicating liquors, or frequenting questionable resorts. 2d, The use of tobacco in any form in or about the college buildings. 3d, All indecent and profane language and behavior.

POLITICS.

It is the aim of the college to cultivate true patriotism, and respect for the laws of the Territory and Nation and for all constituted authority. Students will be taught their rights as citizens, and their duties as such; and there, teaching of this character, will end.

RELIGION.

All students will be trained in the principles of morality, and to respect the teachings of religion. Students will be encouraged to attend the various churches and Sunday schools. Entire freedom of choice is given to students in selecting the church they will attend. At the Presbyterian church are held meetings of the Young People's Society of Christian Endeavor. With the Methodist church is connected the Epworth League. Many of the students attend the weekly meetings of these organizations and receive great benefit. There is a large and flourishing Catholic church here, with a well known priest in charge, which affords religious training for students of that faith. No sectarian teachings will be tolerated in the college.

HOW TO WITHDRAW FROM THE COLLEGE.

If students have occasion to withdraw from the college, they should call on the president and make their arrangements with him. He will see that their accounts are properly adjusted, proper records made of their work, whatever money may be due from their credit deposit refunded, and will so arrange their records that their manner of withdrawal shall not stand in the way of an honorable discharge.

Students who leave without having satisfactorily adjusted all these matters will not be entitled to an honorable dismissal.

EXAMINATIONS AND STANDING.

Examinations are held at the end of each term. Students must make a grade of 70 in each subject. Failing to make this grade students must report for re-examination on the day specified; failing then, they must take the subject with a subsequent class.

ATTENDANCE.

Students are expected to be punctual and regular in attendance. They will not be permitted to leave the college in term time without a leave of absence granted by the President or Faculty. Temporary leave of absence may be granted by the President or in his absence, by the Vice President. Final separation from the college must be acted upon by the Faculty.

The College of Agriculture and Mechanic Arts as a Teachers' Training School.

Section 10, Chapter xix., Laws of New Mexico, reads as follows: "Diplomas issued to graduates of the Normal Schools of New Mexico (at Silver City and Las Vegas), also diplomas issued to the graduates of the Territorial University at Albuquerque, the Territorial School of Mines at Socorro, and the Territorial Agricultural College at Las Cruces, shall be, and the same are hereby considered as first class teachers' certificates in any of the counties in the Territory of New Mexico."

By a law passed at the same session of the Legislative Assembly, St. Michael's College at Santa Fé, was given the same authority.

It will readily be seen that the above institutions are placed on an equality, whether wisely or not, in the matter of training teachers for the public schools of the territory. While the New Mexico College of Agriculture and Mechanic Arts desires to avoid trenching on the ground of any other territorial educational institution, it will make an effort to properly train its graduates who expect to teach, for the duties of that calling.

Material Equipment.

The College Farm donated to the Territory by the citizens of Doña Ana county, contains about two hundred fifty acres of land. About one hundred acres of this farm is the best bottom land, well supplied with water for irrigation from the Las Cruces Community ditch which crosses it. The remaining one hundred fifty acres is mesa land. About thirty acres of this has been cleared for a campus. Upon the campus the main college building is located. The location is a good one from a sanitary point of view. The campus is high and dry, and there are no surroundings which can breed disease. This mesa land affords ample room for any additional buildings which may be erected in the future.

The college farm is crossed near the center by a fine driveway from Mesilla Park Station to the college building. It is divided into eight plats, which in turn are subdivided into plats of various sizes, from a square rod to an acre. The smaller plats are used for special seeds and plants; the larger, for testing the cereals, grasses, forage plants, fibre plants, root crops, vegetables, and fruits.

Plats I. and VIII. are in the old river bed and have water within one or two feet of the surface. The soil is alluvial with a sand sub-soil. These, together with parts of plats II. and VII. are being tested in alfalfa.

That part of plat II. not in alfalfa, is being used for testing the perennial grasses, clovers, and forage plants.

Plat III. of twenty-five acres is occupied by the five year old orchard, in which there are set out in the quincunx form 150 varieties of peaches, 100 of apples, 60 of pears, 50 of plums and prunes, 16 of cherries, 20 of apricots, 4 of nectarines, 5 of quinces, 6 of figs, 8 of Japan persimmons, and 12 of nut-bearing trees. There are four trees of each variety.

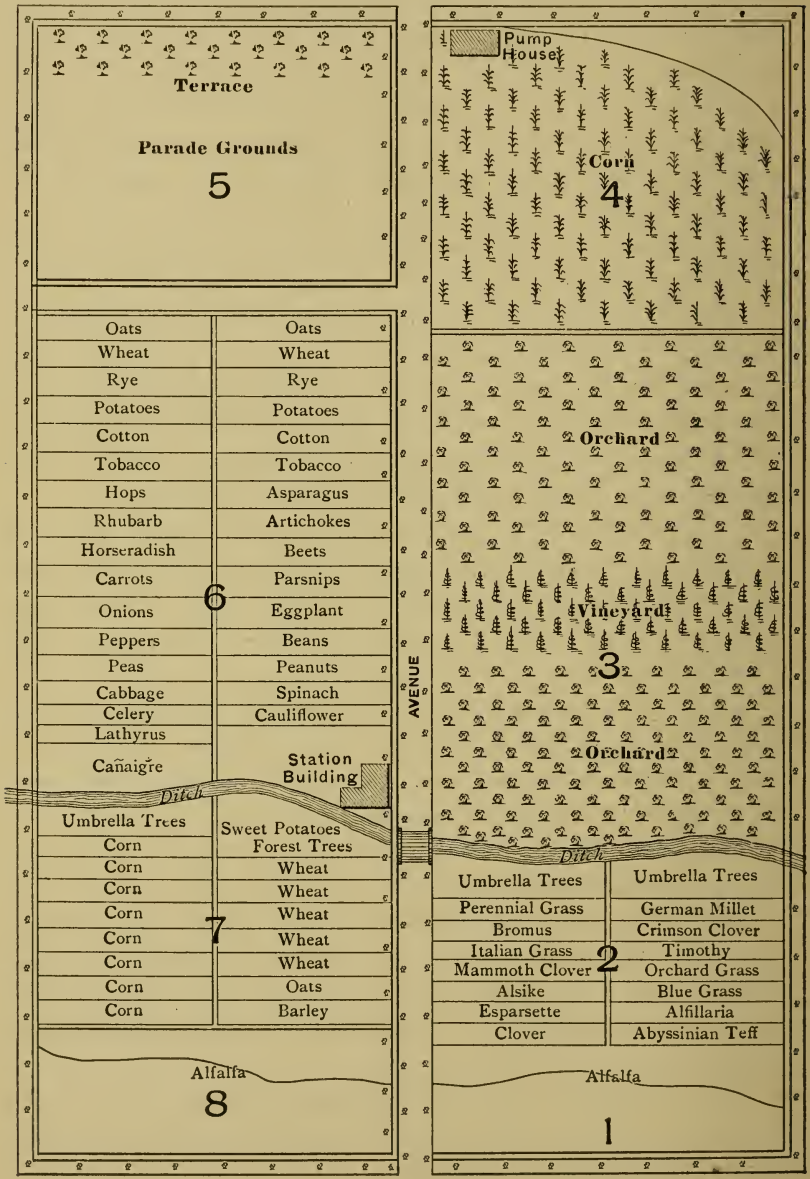
To the east of these, set out in the square form, are 110 varieties of American and foreign grapes, the small fruits, hops, artichokes, and rhubarb; and, farther east, set out in the hexagonal form. are the trees of the new orchard now three years old.

Plat IV. is so divided that a part can be irrigated by river water and a part by well water; this is for the purpose of ascertaining whether well water is deleterious to vegetation. The crop now being tested is corn.

Plat V. across the avenue from plat IV. contains ten acres, and is used by the Athletic Association.

Plat VI. is chiefly devoted to the cultivation of the cereals, vegetables, rice, cotton, tobacco, sorghum, millet, teosinte, doura, ramie, jute, flax, lathyrus, cow peas, vetches, lentils, lupines, and cañaigre. On this plat, the farm buildings are located.

The north half of plat VII. will be cultivated in corn for several successive years. It is divided into eight half-acre plats of which the first is planted March 1st; the second, March 15th; the third, April 1st; the fourth, April 15th; the



PLAN OF

EXPERIMENTAL FARM.

fifth, May 1st; the sixth, May 15th; the seventh, June 1st; the eight, June 15th. These plantings are to ascertain the best time for planting corn, while the succession of the same crop will determine whether the soil can be depleted so long as the river water contains a sediment as rich as that now deposited. The south half of this plat is being cultivated in sweet potatoes, tree seeds, and small grain; viz., 540 kinds of domestic and foreign wheat, 77 kinds of oats, 45 kinds of barley, and 24 kinds of rye.

COLLEGE BUILDING.

The College building is a fine brick structure of two stories and basement. It is trimmed with stone, and has a very heavy stone foundation. It is well built and finished, and cost about $25000. It contains thirteen rooms all of which are furnished and in constant use. The building is heated throughout by hot air furnaces, and is well supplied with gas and water. In the basement are the chemical and entomological laboratories,each fitted up with the best appliances. Here are also the Recitation rooms for bookkeeping and for telegraphy. On the first floor are the president's office, the mathematical department, the botanical and geological department, the library, and the recitation room for stenography and typewriting. For lack of space, the library room is utilized for a study room for college students. On the second floor are the department of history and political science, the department of languages, the department of music and elocution, and the preparatory department of the college. On this floor is a hall capable of seating quite a large audience. It is in frequent use for class public exercises, music recitals, and entertainments by the college literary societies. On account of the lack of room, this hall is divided by movable partitions into three class rooms for the use of the preparatory department.

The Library and Reading Room is commodious, and furnished in a tasteful manner. The library contains more than 2300 volumes, to which additions are constantly being made. Each department is supplied with a technical library for daily use in the class room. The plan of Department libraries has been adopted as best calculated to increase the usefulness of the library by making it more accessible to students while engaged in special lines of work. The Reference library is quite extensive, containing encyclopedias, gazetteers, dictionaries, etc. The general library includes standard books on history, biography, travels, literature, art, science, and some of the best fiction.

In connection with the Library is a Reading Room, in which are found the following periodicals:—

Agricultural Science, *American Agriculturist, *American Cheesemaker, American Chemical Journal, American Machinist, *American Meteorological Journal, American Naturalist, Analyst, *Baltimore Weekly Sun, Botanical Gazette, *Bullion (Los Angeles, Cal.), Bulletin Torrey Botanical Club, Canadian Entomologist, Century, Chemical News, *Chieftain (Socorro, N. M.), Compass, Cosmopolitan, Country Gentleman, Educational Review, Engineering (London), Engineering News, Engineering Magazine, Engineering-Mechanics, Entomological News, *Farmer's Magazine, Forum, *Golden Rule, *Grange Visitor, Harpers' Monthly Magazine, Harpers' Weekly, Harpers' Young People, *Hoard's Dairyman, *Industrial American, Irrigation Age, Journal American Chemical Society, Journal Association Engineering Societies, Journal of Education, Journal New York Entomological Society, Ladies' Home Journal (two copies), *Midland Poultry Journal, *New Mexico Collegian, Nebraska Farmer, North American Review, Pacific Rural Press, Popular Science Monthly, *Proceedings American Philosophical Society, Progressive Age, Psyche, Public Opinion, Review of Reviews, *Roswell Record, Scientific American,

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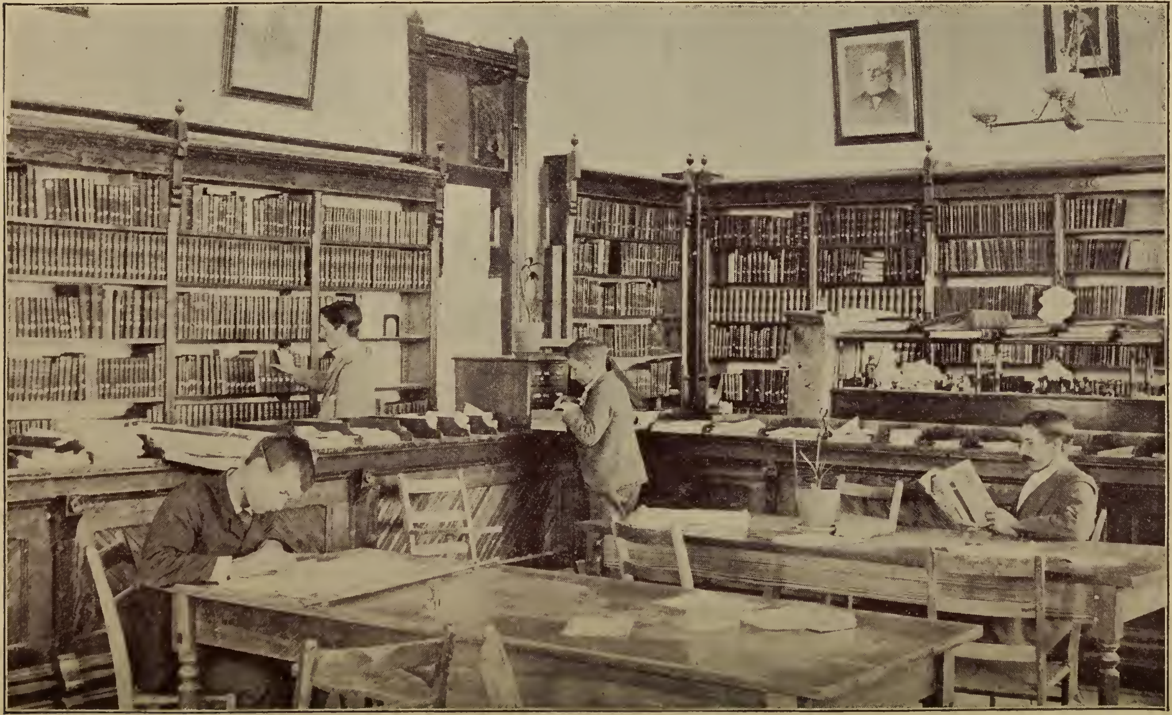
* Furnished gratuitously by the Publisher.



A CORNER OF THE LIBRARY.

Scientific American Supplement, Science, *Shaft (Rincon, N M.), *Southern Cultivator, *Stock Grower (Las Vegas, N. M.), School Journal—Kellogg's, Transactions American Entomological Society, *Transactions Massachusetts Horticultural Society, *Weather Review, Werner's Voice Magazine, Youth's Companion (two copies), Garden and Forest, Political Science Quarterly, Zoe, Current History, Bulletin of the N. Y. Mathematical Society, Astronomical Journal, Astrophysical Journal, Scribner's Magazine.

ENGINEERING BUILDING.

During the past year, a frame building, 30x60 ft., standing south of the college, has been completed and assigned to the Engineering Department for shop purposes. The building is divided into two large rooms for carpenter and blacksmith shops. These shops are a great improvement on the quarters heretofore used for shop purposes. They have an excellent equipment of modern tools and machinery, plenty of light and air, and are sufficiently spacious to accommodate twenty students at one time.

Recently the Board of Regents has authorized a very considerable enlargement of the shop building, to provide separate rooms for a machine shop, a foundry, and for laboratory, reritation and drawing purposes. These additions will be substantially built, and it is hoped to have them completed before the end of the year 1895.

OTHER BUILDINGS.

Back of the college building are the feed rooms and horse sheds. These are for the accommodation of the horses of the students and professors. The charge for their use is 25 cents a term, which is sufficient to keep them cleaned and in order.

Just back of these is a large well with wind pump and tank. This furnishes an ample supply of water for the main building.

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* Furnished gratuitously by the Publisher.

Below the college building is a pump house with engine and all other necessary machinery for pumping water from a system of six driven wells for the irrigation of the campus, which is much higher than the ditches which irrigate the farm land. This plant cost about $2500. From the use of this plant the students and others interested can learn the expense of hoisting water for irrigation purposes, the extent of ground that can be irrigated, and the effect of well water on vegetable life.

Near the center of the farm, close to the main ditch is located an adobe farm building erected at a cost of about $2000. It consists of a residence for the assistant in agriculture and horticulture; and a large room for storing seeds, supplies, etc.; also sheds for the storing of farm implements and machinery.

General Request.

We believe the College of Agriculture and Mechanic Arts offers a great deal to the young people of New Mexico. Every effort will be made to acquaint the people of the whole Territory with its purpose and work. Its courses of study are now equivalent to those of similar colleges in almost all of the older states. We believe that students can now get a practical education here in any line they wish. New schools usually make greater efforts than do older ones; and the energy put forth, and the instruction given are often superior. There are a great number of students sent from various parts of the Territory each year to eastern colleges. We ask parents who do this, to thoroughly investigate this college; and we believe if they will do so, it will get a share of their patronage, and that our people will in an increasing degree manifest their appreciation of the bounty of the U. S. and of the Territory here dispensed. We know it is better fitted to do good work than some of the eastern schools patronized by our people.

College Students.

SENIOR CLASS.

Bennett, Joseph Francis,*	Mesilla Park.
Casad, Jessie Edna,	Mesilla.
Williams, Arthur Edwin,*	Las Cruces.

JUNIOR CLASS.

Bryan, John Bowman,	Las Cruces.
Gilmore, Mae,	Ft. Stanton.
Holt, Alfred Moss,	Mesilla.
Peterson, Albert Henry,	Mesilla Park.
Rhodes, Clarence Edgar,	Mesilla.
Walker, Joseph Milton,	Homestead, Pa.

SOPHOMORE CLASS.

Cravens, Du Val Garland,	Ft. Smith, Ark.
French, Floy Edna,	Las Cruces.
Gilmore, Ora,	Ft. Stanton.
Holt, Elgin Bryce,	Mesilla.
McFie, Ralph Elmo,	Las Cruces.
Williams, George Morgan,	Las Cruces.

FRESHMAN CLASS.

Bailey, Myrtle,	Mesilla.
Casey, Edwin Eugene,	Las Cruces.
Coe, Edward James,	Ft. Stanton.
Coleman, Bertie	Victoria.
Coleman, James Thomas,	Victoria.
Kezer, John Henry,	Las Cruces.
Mead, Charles Edward,	Victoria.
Mead, William Champlin,	Victoria.
Owen, Florence May,	Las Cruces.

Peacock, Frederica Bush,	Victoria.
Stanley, Isaac Henry,	Pinos Altos.
Sweet, Lottie,	Mesilla Park.

SPECIAL STUDENTS.

Chatelin, Margaret,	Vevay, Ind.
Mills, Charles,	Danville, Ill.
Jones, Samuel J.,	Mesilla.

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*Did not complete the year's work.

Preparatory Students.

THIRD YEAR CLASS.

Adair, Abner J.,	Pinos Altos.
Bailey, Tudie,	Mesilla.
Baird, Nancy Celia,	Las Cruces.
Broyles, Richard Franklin,	Ottawa, Kas.
Buchoz, Edward Spencer,	Las Cruces.
Cain, Fred Walter	Kingston.
Casad, Darwin,	Mesilla.
Climo, James,	Pinos Altos.
Coe, Albert Newton,	Farmington.
Ford, Pinkie,	Las Cruces.
French, Ralph Emerson,	Las Cruces.
Gilmore, Ula,	Ft. Stanton.
Hall, Cornelia Belle,	Silver City.
Hinton, Arthur Richard,	Bay Ridge, N. Y.
Jacoby, Clara,	Hatch.
Peake, Dee,	Mesilla Park
Sutherland, Paul,	La Luz.
Woodworth, John Morgan,	Mesilla.
Peacock, Daura,	Victoria.

SECOND YEAR CLASS.

Allen, Mary Edda,	Victoria.
Alvarez, Louis E.,	Anthony.
Ames, Primitivo Santos,	Las Cruces.
Armijo, Isidoro,	Las Cruces.
Baird, William Wallace,	Las Cruces.
Baird, Alonzo Eugene,	Las Cruces.
Bermudez, Antonio Eduardo,	Mesilla.
Bouguer, Joseph Oscar,	Silver City.
Bryan, Joseph,	Las Cruces.
Bull, Thomas R.,	Mesilla.
Bullard, Minerva Jane,	Las Cruces.
Cliver, Paul Mitchell,	Mesilla Park.
Coe, Ross,	Ft. Stanton.
Coe, Sadie Belle,	Ft. Stanton.
Coleman, Elizabeth,	Victoria.
Cowan, Charles Clarence,	Las Cruces.
Davis, Vivette,	El Paso, Tex.
DeMier, Eugene,	Las Cruces.
French, Fannie,	Las Cruces.
Gonzales, Pablo,	Las Cruces.
Goodin, Monte Hickman,	Las Cruces.
Griggs, Gustave Dore',	Mesilla.
Harrison, Harry Young,	Olney, Ill.
Holt, Valeria,	Mesilla.
Jacoby, Lydia,	Hatch.
Jacoby, William,	Hatch.
Lee, Elizabeth,	Las Cruces.
May, Mary,	Las Cruces.
McGregor, Marie Justina,	Mesilla.
Morley, Harold,	Chamberino.
Morley, Helen Bernardine,	Chamberino.
Newberry, Maud,	Las Cruces.

Newberry, Minnie Wilson,	Las Cruces.
Newberry, Samuel Henderson,	Las Cruces.
O'Keefe, Edward,	El Paso, Tex.
Owen, James Edward,	Las Cruces.
Rheinhart, Lambert Bernard,	Las Cruces.
Rhodes, Helen Mabel,	Mesilla.
Sanford, John Dulin,	La Luz.
Solomon, Harry,	Solomonville, Ariz.
Steel, Mathew,	Las Cruces.
Stevens, Bert,	Pinos Altos.
Stevens, Frank,	Pinos Altos.
Sweet, Almer,	Mesilla Park.
Thompson, Cayetano,	Mimbres.

FIRST YEAR CLASS.

Alvarez, Lauro E.,	Anthony.
Apodaca, Canuto,	Mesilla.
Arvizu, Jaime,	Victoria.
Casey, Leo Garfield,	Las Cruces.
Coe, Lillie Alice,	Ft. Stanton.
Cook, William,	El Paso, Tex.
Cuniffe, Clara,	Las Cruces.
Ford, Fannie Jane,	Las Cruces.
Foster, Florence,	Las Cruces.
Gamboa, Jeronimo,	Mesilla.
Garcia, Belzan,	Doña Ana.
Isaacs, Callie,	Las Cruces.
Jerrell, Henry,	Las Cruces.
Kezer, Avery M.,	Las Cruces.
Kezer, Grace Belle,	Las Cruces.
Kezer, Roy Vernon,	Las Cruces.
King, William Jesse,	Las Cruces.
Lapoint, Lawrence,	Las Cruces.
Lee, Donnie,	Las Cruces.

Lee, James Elliott,	Las Cruces.
Lightfoot, Ollie Belle,	Las Cruces.
Logue, Jessie Pet,	Las Cruces
Lowe, Lawson David,	Las Cruces.
May, Ormeda,	Las Cruces.
Miller, William,	Las Cruces.
Moreno, Eugenio, E.,	Victoria.
Mott, Rowena M.,	Las Cruces.
Newberry, Nora Lee,	Las Cruces.
Peake, Charlotte Mae,	Mesilla Park.
Potts. Rex,	Las Cruces.
Reush, Harry Leemont,	Earlham.
Snow, Carl,	Victoria.
Stafford, Edward,	Las Cruces.
Stuppie, Nicholas,	Towne, Tex.
Williams, Samuel,	Las Cruces.
Williams, Waugh,	Las Cruces.

Business Students.

BOOKKEEPING CLASS.

Bullard, Nettie,	Las Cruces.
Davis, Benjamin T.,	El Paso, Tex.
Gilmore, Watt,	Ft. Stanton.
Gray, William J.,	Gray.
Hardoin, Theodore W.,	Pecos City, Tex.
Herron, Mary K.,	Mesilla.
Holbrook, Charles,	Las Cruces.
Holt, Walter E.,*	Mesilla.
Kezer, Lucy A.,	Earlham.
Kinsey, William D.,†	Hillsboro.
McGrath, Herbert J.,	Lordsburg.
Smith, Lillian M.,	Las Cruces.

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*Completed course and received certificate

†Did one term's work in the Freshman class.

STENOGRAPHY AND TYPEWRITING CLASS.

Hollenwager, John S.,	Las Vegas.
McCrea, Mary E.,	Princeton Ind.
Mead, Ivah, R.,*	Victoria.
Reed, Josephine,*	Attica, Ind.
Steel, Eleanor M.,*	Las Cruces.
Watson, Oscar,	White Oaks.
Wickham, Elizabeth,*	Socorro.

TELEGRAPHY CLASS.

Amador, Juan E.,*	Las Cruces.
Ames, David C.,*	Las Cruces.
Bullard, George,*	Las Cruces.
DeMier, James,	Las Cruces.
Loomis, Rockwell C.,	El Paso, Texas.
Mackel, Ernest P.,	Las Vegas.
Mitchell, Earl K.,*	Mesilla Park.
Moore, Thomas H.,	Santa Fé.
Peacock, Viola,	Victoria.
Rynerson, Henry L.,	Las Cruces.

Music Students.

Coe, Sadie B.,	Ft. Stanton.
Coleman, Elizabeth,	Victoria.
Gilmore, Ora,	Ft. Stanton.
Hall, Cornelia B.,	Silver City.
Holt, Valeria,	Mesilla.
Jacoby, Clara,	Hatch.
Jacoby, Lydia,	Hatch.
Kezer, Grace,	Las Cruces.
McGregor, Marie J,,	Mesilla.
Newberry, Minnie,	Las Cruces.

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*Completed course and received certificate

Owen, Florence M.,	Las Cruces.
Peacock, Frederica B.,	Victoria.
Sweet, Almer,	Mesilla Park.
Sweet, Lottie,	Mesilla Park.

Summary.

Seniors,	3.
Juniors,	6.
Sophomores,	6.
Freshmen,	14.
Special,	3.
Stenography,	7.
Bookkeeping,	12.
Telegraphy,	10.
Preparatory,	99.
Music,	14.
	174.
Names repeated	14.
Total number of students	160.

The Agricultural Experiment Station.

BOARD OF CONTROL:

Board of Regents of the College.

THOMAS J. BULL, Mesilla, President.

DEMETRIO CHAVES, Mesilla, Secretary, and Treasurer.

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WM. T. THORNTON, Governor, Santa Fé, N. M., *Ex-Officio.*

AMADO CHAVES, Superintendent of Public Instruction, Santa Fé, N. M., *Ex-Officio.*

Station Staff 1895-6.

S. P. McCREA, Director.

ELMER O. WOOTON, B. S., Botanist.

ARTHUR GOSS, M. S., A. C., Chemist.

T. D. A. COCKERELL, Entomologist and Zoologist.

GEORGE VESTAL, Agriculturist and Horticulturist.

R. FRED HARE, M. S., Assistant Chemist.

FABIAN GARCIA, B. S., Assistant to Agriculturist and Horticulturist.

FRANK E. LESTER, Clerk and Stenographer.

HARVEY H. GRIFFIN, B. S., Superintendent of San Juan Branch Experiment Station, Aztec, N. M.

FRANK BEACH, M. S., Superintendent of Las Vegas Branch Experiment Station, Las Vegas, N. M.

By the congressional act of 1887 a "department" of agricultural colleges was endowed, having for its purpose the performing of experiments of value to agriculture and horticulture, and the diffusing of valuable information among the people.

This department of the college is in successful operation. The farm consists of about 100 acres of excellent land under irrigation, and a much larger amount of mesa land. At a great outlay of labor, the former has been graded to an almost perfect surface.

A great number of valuable horticultural and agricultural experiments are in process of testing, and more are being constantly begun. During a large portion of the year, students have opportunities to labor on this farm, thus enabling them to defray a considerable portion of their expenses. Besides this, they are under the direct guidance and instruction of an educated horticulturist and agriculturist of large experience. This alone is a valuable consideration.

Of the mesa land, thirty acres have been cleared of mesquite and put into good condition for experimentation. A portion of this land is used without irrigation, and a portion of the remainder is supplied with water raised from wells by means of steam power.

A large amount of Entomological work has beeen done which promises results of great practical value to the horticulturist. The design of this department is to inform farmers and fruit-growers of the injurious insects found here, and to suggest the best methods of exterminating them. The value of such work is readily seen, and the method of disseminating information is by bulletins issued at intervals.

In the Chemical department much work is being done on irrigating waters, native forage plants, and various other subjects of special interest to the farmers of the Territory. Besides being of the highest importance to the Agricultural classes, this work affords the students an opportunity of seeing chemical processes practically applied. Numerous assays of ores and determinations of minerals are also made in this department, thus affording the students an object lesson in this kind of work.

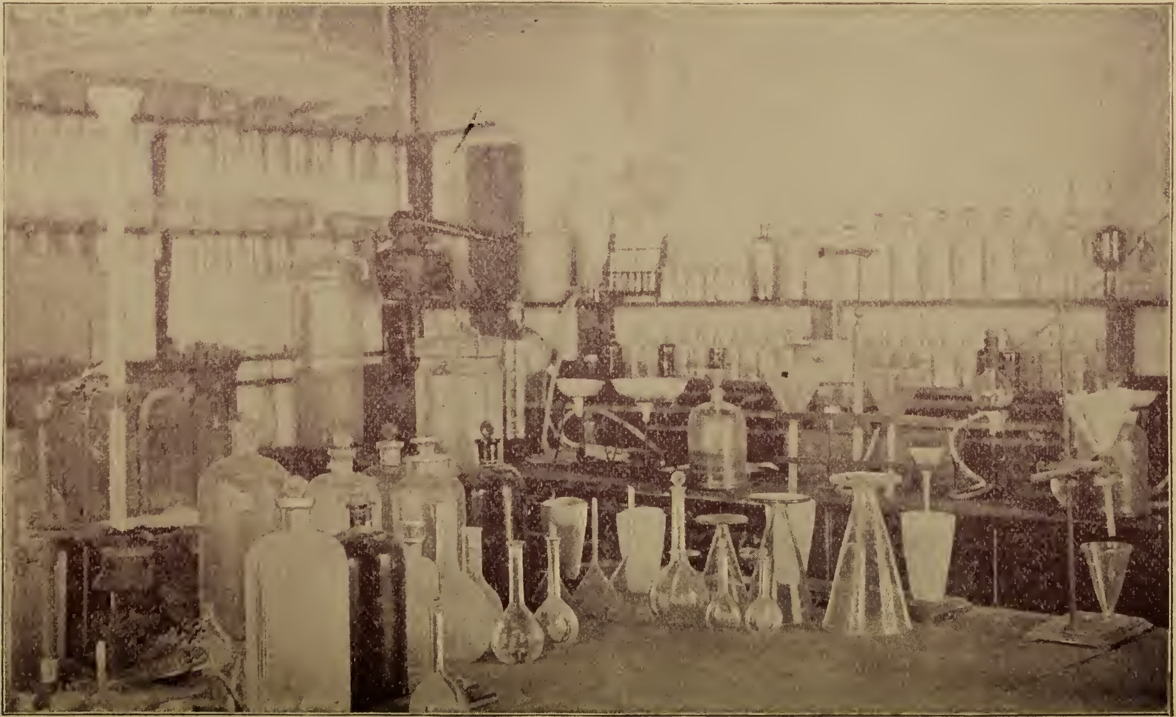
The Botanical department is devoting its time and attention to the collection of an herbarium and a thorough understanding of the local flora. Much work has been done in this line already as well as a considerable study of our native weeds.

The fungus diseases of plants, particularly those of the vine and orchard trees, have received some attention and will hereafter form the basis of one term's work for students of the Agricultural Course.

Students are required to do some collecting, and the specimens already in the herbarium are extensively used in class work, so that students are in close contact with the regular work of the department.

Twelve bulletins have been issued on topics of interest to farmers, and more are in preparation. Those already issued treat of the following:—

No. 1. April, 1890—General Information.
No. 2. Oct., 1890—Outline of Plans of Experimentation.
No. 3. June, 1891—Preliminary Account of Some Insects Injurious to Fruit.—C. H. Tyler Townsend.
No. 4. March, 1892—Fruit Trees, Forest and Shade Trees, Nut-Bearing Trees, and Vegetables.—A. E. Blount.
No. 5. March, 1892—Notices of Importance Concerning Fruit Insects.—C. H. Tyler Townsend.
No. 6. March, 1892—Cereals, Forage Plants, Grasses, Clovers, Textile Plants, and Sorghums.—A. E. Blount.
No. 7. June, 1892—Scale Insects in New Mexico.—C. H. Tyler Townsend



STATION CHEMICAL LABORATORY.

No. 8. Nov., 1892—Wheat, Oats, Barley, Rye, Sugar Beets, Sorghum, Cañaigre, etc.—A. E. Blount.

No. 9. May, 1893—Insecticides and their Appliances.—C. H. Tyler Townsend.

No. 10. Sept. 1893—Insects of 1893.—T. D A. Cockerell.

No. 11. Oct. 1893—Notes on Cañaigre and Meteorological Data.—A. E. Blount and Harvey H. Griffin.

No. 12. Nov., 1893—The Value of Rio Grande Water for the Purpose of Irrigation.—Arthur Goss.

No. 13. New Mexico Weeds, No. I.—E. O. Wooton.

No. 14. Cañaigre.—A. E. Blount.

No. 15. Entomological Observations in 1894. Life Zones in New Mexico. Entomological Diary at Santa Fe. —T. D. A. Cockerell.

Upon application Bulletins will be sent *free* to any address in the Territory.

ERRATA—Page 84; the name "Daura Peacock," at bottom of page, should be at top of page in Freshman Class.